

MUNICIPAL JOURNAL AND ENGINEER

VOLUME XXII.

NEW YORK, MARCH 27, 1907.

No. 13

Published every Wednesday by
THE MUNICIPAL PUBLISHING COMPANY
Flatiron Building, Madison Square
New York City
Telephone, 6723 Gramercy, New York

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TERMS OF SUBSCRIPTION, PAYABLE IN ADVANCE

United States and possessions, Canada, Mexico, Cuba, \$3.00 per year
All other countries 4.00 per year

Make all checks payable to The Municipal Publishing Company.

Entered as second-class matter, January 3, 1906, at the Post Office
at New York, N. Y., under the Act of Congress of March 3, 1879.

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CONTENTS

Cause of Typhoid at Washington.....	305
Planning City Streets.....	305
Washington's Typhoid Epidemic.....	306
Waste Disposal at East Orange (Illustrated).....	306
To Remedy Passaic River Pollution.....	309
Sewage Disposal at Hanley, England.....	311
The Municipal Bond Market.....	311
Constructing Reinforced Concrete Sewer.....	311
NEWS OF THE MUNICIPALITIES.....	312
Legal News—A Summary and Notes of Recent Decisions.....	317
News of the Societies.....	317
THE WEEK'S CONTRACT NEWS.....	318
Incorporations	325
Patent Claims	325
Personals	327
Trade Notes	328

Cause of Typhoid at Washington

It is unfortunate that the report of the Government commission, discussed on another page, fails to assign any particular reason for the typhoid fever epidemic in Washington, D. C., last summer; unfortunate both because it gives no definite encouragement of the possibility of preventing its recurrence, but especially because it leaves water filtration in the ambiguous position of having received a Scotch verdict—"not proven."

This is true of the commission's conclusions, certainly. But the body of the report seems to us to be more encouraging; and conditions with reference to the milk supply which are described therein give rise to a reasonable suspicion that this is more likely to have been responsible for the 67 per cent. of cases unaccounted for than is the water supply. Bottles, covers and open cans were found handled by nurses of typhoid patients, and

flies had free intercommunication between them and such patients. The milk was not kept cool during transportation, the dairy farms were not under proper control, and considerable dirt, some apparently from the barn yard, was found in much of it. One of the most startling indications was the high bacterial content of all samples, showing that no citizens were free from the dangers connected with impure milk. The average number of bacteria in all the 172 samples was 22,134,289 per c.c., and less than 17 per cent. contained a less number than 500,000. To indicate what these figures mean we give for comparison the results of 262 tests made in Montclair, N. J. (these being convenient to hand), being monthly tests on 22 supplies. The highest number of bacteria found in these was 1,500,000 and but one other was over a million; but 51 samples contained more than 100,000; and 44 contained less than 10,000. The average of all samples for the year was 95,907, or 0.44 per cent. of Washington's average. Washington's water supply stands infinitely higher in comparison with that of other cities than does her milk supply, by this showing; and unless some proof is established against it besides mere elimination of other probable causes, we cannot consider that this epidemic reflects seriously on the efficacy of filtration.

Planning City Streets

ONE of the greatest difficulties connected with the development of plans for city beautifying, and a most serious obstacle to an ideal arrangement of streets, is the partial or total lack of control which many municipalities possess or exercise over the subdivision of private lands by their owners. In too many cases owners of large properties, especially those not contiguous to territory already opened up, are permitted to locate streets wherever they may desire, of any width, and creating blocks of any size. This is all wrong. The city, as a whole, is vitally concerned in all streets, using them for thoroughfares, being required to pave and clean them, and utilizing them for many legitimate public purposes. It is generally recognized by every large city that early in its history—the earlier the better—a street plan should be prepared covering all the area which is likely to be reached by the expansion of many years to come. A correspondent from a city which wishes to provide for such control, not only within city limits, but also in contiguous territory which will probably be annexed in the future, asks concerning the best method of exercising it. This is a matter which concerns all municipalities, and we invite correspondence on the subject from those cities where it has been solved satisfactorily—or unsatisfactorily.

WASHINGTON'S TYPHOID EPIDEMIC

Report of Special Board of Government Officials—Sixty-seven per cent. of Cases Unaccounted For —
Water Supply Discussed

SURGEON GENERAL WYMAN a few days ago transmitted to the Commissioners of the District of Columbia the report of a special board upon typhoid fever in Washington. This board consisted of M. J. Rosenau, Director of the Hygienic Laboratory; L. L. Lumsden, Passed Assistant Surgeon; Joseph H. Kastle, Chief of Division of Chemistry; and seven other Passed Assistant Surgeons. The intensity of the epidemic in Washington last summer was less exceptional than the difficulty in determining its cause; and during the summer the entire force of the Hygienic Laboratory was engaged upon the problem. In spite of which, this report leaves it little nearer solution than it was before. "It is evident that at the present time it is not possible to present satisfactory proof as to the part played by the Potomac river water in the spread of typhoid fever in the District of Columbia. Therefore the board reserves final decision on this subject until investigations now in progress at the Hygienic Laboratory have been completed. Although views may differ concerning the relative parts played by water, milk, contacts and other factors in the spread of typhoid fever, there is a general agreement that the successful control of the disease lies in destroying the infection as it leaves the body; that is, we must try to prevent the infection of our food and drink and our environment." This is practically the conclusion previously reached by Health Officer Woodward.

The board studied 866 cases, of which 85 were attributed to infected milk, about 8 per cent. were traceable to contact, 119 were believed to be imported, leaving about 67 per cent. of uncertain origin. The studies made indicate that ice plays little, if any, part in spreading the infection of typhoid in the District of Columbia. The danger possible in artificial ice is indicated by the fact that this contained more bacteria than the water from which it was made, due probably to dirt from the shoes of the operatives which could have dropped into the freezing cans. Of 87 wells used for drinking water, the 27 deep ones gave excellent water; but of the 63 shallow ones 31 appeared to contain sewage pollution, although no direct connection between them and any typhoid cases could be traced.

As favoring the belief that the city water played a part in the epidemic are the facts that 97½ per cent. of the cases studied had drunk such water unboiled within thirty days; that the cases were uniformly distributed throughout the city; that colon bacilli were found in 3 samples of 21 of filtered water, and in 23 of 131 samples of tap water. The death rate last summer was 49.3 per 100,000, most of them unaccounted for, and if water was not the agent of the infection then it remains unknown. On the other hand, practically all the citizens drank the water unboiled and the typhoid rate was lower than in most cases of

epidemics traced to polluted water; too much importance may be given by bacteriologists to the presence of the colon bacillus; filtration apparently little if any more efficient in other cities has produced marked decrease in typhoid rates; typhoid in Washington is practically confined to the summer months, while the character of the water does not apparently change; carelessness in the care of the sick and in handling the milk supply may be responsible for many more cases than were attributed to them.

The conditions affecting the milk delivery received and apparently deserved extended notice. Of 172 samples tested, only 29 contained less than 500,000 bacteria per c.c., and the average of all samples was 22,134,289. (The Montclair, N. J., health board reported last year that the milk furnished by one-third of the local dealers averaged less than 36,000 and none averaged higher than 270,000 bacteria.) Employees at dairies lived in houses where typhoid cases were being treated; milk was delivered in bottles to houses containing patients; returned bottles were not disinfected or even washed thoroughly, and unboiled tap water was used for washing; the paper bottle caps are exposed to flies and handled with unclean fingers. Milk was sold at groceries by the same hands which nursed typhoid patients, and in adjoining rooms, flies having access to both store and room. The milk was not kept cold, especially in transit. Only one of the city dairies was screened from flies, although they are near stables and outhouses; the hands and clothing of employees therein were not clean; and the milk is generally a day old before it reaches the consumer. On the score of temperature and bacteria alone the milk sold at Washington would be condemned in New York or Boston.

WASTE DISPOSAL FOR EAST ORANGE

Report on Plant for This Purpose—Amounts of Each Class of
Waste—Calorific Values—Estimates
of Cost

THE disposal of the garbage of East Orange, N. J., is becoming a most serious question. There is no place within city limits to dispose of it, and all the surrounding towns, except one, have prohibited taking the garbage into their territory. If this outlet should be closed by the Board of Health of that municipality, East Orange would be suddenly face to face with a problem difficult of solution except at enormous expense.

Another problem in this city, although one whose early solution is much less imperative, is the street lighting, which is now performed by Welsbach and open-flame gas lamps, insufficient in number.

Realizing these conditions, a joint committee of Ordinance and Street Lighting engaged a Consulting Engineer, Mr. Henry Floy, to submit a report on both problems; in preparing which he was assisted by Mr. Louis B. Marks, Illuminating Expert, and Mr. E. G. Ackart, Mechanical Engineer.

The present conditions are as follows: Under a con-

tract expiring August 1, 1911, a private scavenger stipulates to remove, at least every other day (except Sundays and holidays), all garbage and refuse placed in receptacles on the street, and to deposit the garbage separately from the refuse at such points as the city authorities shall designate, for which service he receives \$13,400, less possible deductions for reduced length of haul. A number of citizens also arrange with private scavengers for such service for a total sum estimated at \$15,000. The city also has a contract with the public scavenger expiring August 1, 1907, to deliver the garbage to a reduction works in Newark for \$3,000 a year. The total cost to the city is therefore about \$31,000 a year. It is estimated that the amount of refuse to be removed is increasing 10 per cent. or 15 per cent. a year, partly because low vacant lands, now available for dumping, are being rapidly filled up. Because of this contract the question of municipal collection was not considered.

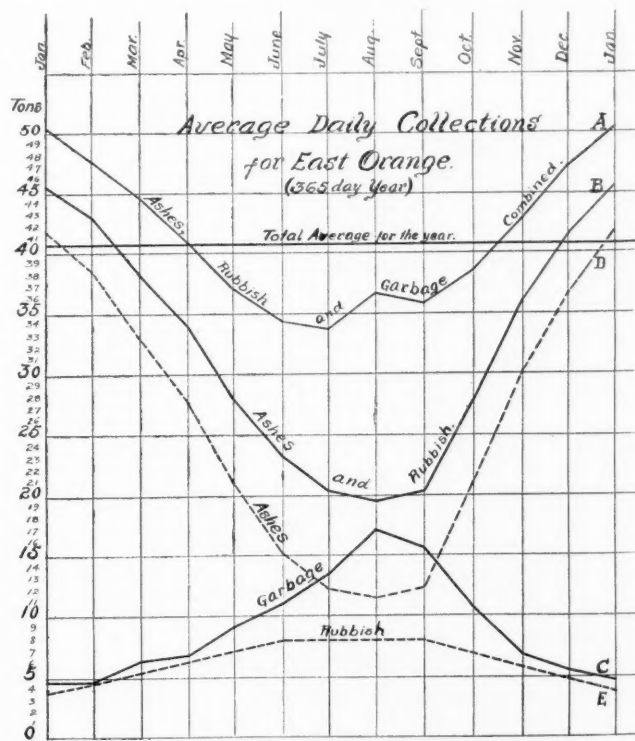
As is the case in most cities, there are no definite data concerning the amounts of garbage and refuse to be disposed of, and there seemed to be available no better method of estimating these than by referring to the notebooks of the public and private scavengers, combined with general inquiry and personal investigation. The amounts were expressed by the scavengers in terms of barrels and loads as units, barrels of garbage being assumed to weigh an average of 200 pounds, loads of garbage 3,000 pounds (private scavengers) and 3,800 pounds (public scavengers), and combined ashes and rubbish 1,500 to 1,700 pounds for one-horse loads and 2,000 to 2,300 pounds for two-horse loads. The quantities thus ascertained and estimated are given for each month of the year, in terms of short tons, in the following diagram. As rubbish and ashes were collected together, the respective amounts of each given are esti-

mates, based upon a few experiments and general data. A comparison of the amounts for East Orange with those for other cities shows a greater variation in the amount of ashes and rubbish for the first, and the same is also true of garbage if we exclude Philadelphia's September record.

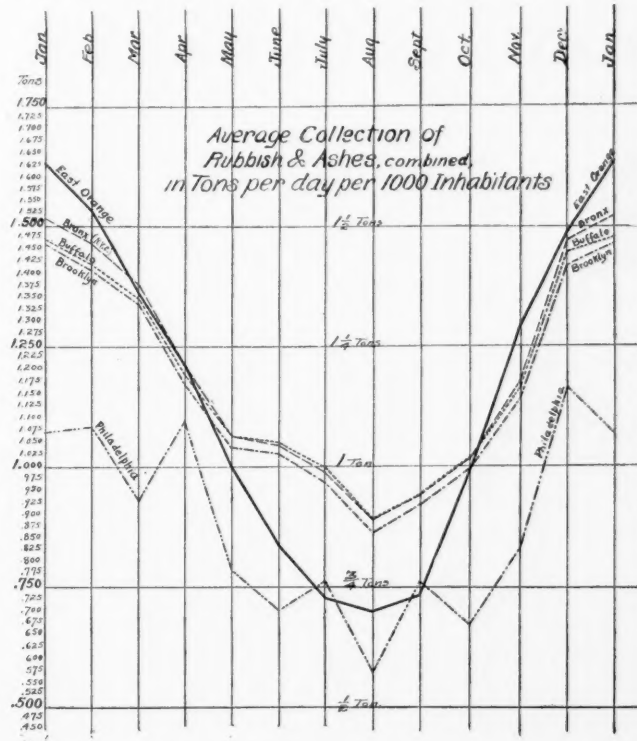
Last year twenty-two replies were received from city officials to questions concerning waste destruction. "The consensus of opinion, as expressed in the replies received, indicates that the destruction of part or all of city waste by fire is satisfactorily accomplished, but at costs widely differing, depending upon the material consumed, the type of apparatus installed and the character of the management. It was the unanimous opinion that incineration could be carried on without odor or nuisance.

"Because of the simplicity in collection (garbage, rubbish and ashes not being separated), and on account of the avoidance of odors and nuisance from a city 'dump,' with the assurance of perfectly sanitary results, the idea of combining and burning all of the city waste appeals to the average man as both sane and desirable. A further advantage is that ashes, mixed with garbage, absorb the liquids and cover the particles of animal and vegetable matter with more or less of a coating that usually delays putrefaction and prevents odors until after removal from the residences. Moreover, the unrestricted mixing of the different classes of waste avoids the too frequent cause of controversy between the citizens and the scavengers, occasioned by the separation ordinances.

"The principal objection to the incineration of a city's combined waste is the great bulk of material that must be handled, and hence the large plant required and increased cost resulting. If, however, the heat produced by the destruction of the entire city's waste can be utilized, as for example in the generation of electricity for lighting



DAILY COLLECTIONS, AVERAGED BY MONTHS, EAST ORANGE



REFUSE COLLECTIONS IN FIVE CITIES

streets or residences, and the equivalent coal value of the material consumed is credited to the cost of incineration, the financial burden of complete waste destruction will be found to be *nil* or inconsequential in view of the sanitary results secured."

Mr. Floy does not advise East Orange to burn garbage alone, because this would require using additional fuel; the amount would be small in winter; it solves only a part of the problem, and has fallen short of success elsewhere. Rubbish he considers more apt to create a nuisance than ashes, and advises burning the former at any rate. "From a knowledge of what is being done elsewhere, and guarantees obtainable from builders of incinerating plants there is no question, in the writer's mind, but that either garbage and rubbish, or garbage, rubbish and ashes can be destroyed at a cost not exceeding 50 cents per ton, aside from fixed charges, in a properly designed, well-built and intelligently operated incinerator or destructor." In fact he considers that figure very conservative. Modifying English figures to suit American prices for labor he obtains an average labor cost of 37 cents per ton.

He estimates that a 30-ton incinerator would handle a 20 per cent. increase over present amounts of garbage and rubbish; also that to burn ashes in addition would require just double the capacity. He also allows \$3,500 for land to contain such a plant, and in addition a stable, street department equipment and an electric-light plant. He has estimated on brick or concrete building, brick stock and paved approach, rather than the cheap and flimsy construction responsible for unsatisfactory results in many instances.

The costs of construction and of operation, both with and without ashes, he tabulates as follows:

INCINERATOR FOR GARBAGE AND RUBBISH

CONSTRUCTION COST

Two 30-ton incinerators.....	\$34,000
Building, stack, etc.....	18,000
Real estate.....	3,500
Engineering and contingencies.....	5,550
Total	\$61,050

MAINTENANCE COST (PER DAY)

Interest at 4 per cent., depreciation at 5 per cent.....	\$13.80
Labor on 15.77 tons at 50 cents.....	7.88

Total cost per day.....\$21.68

DESTRUCTOR FOR GARBAGE, RUBBISH AND ASHES

CONSTRUCTION COST

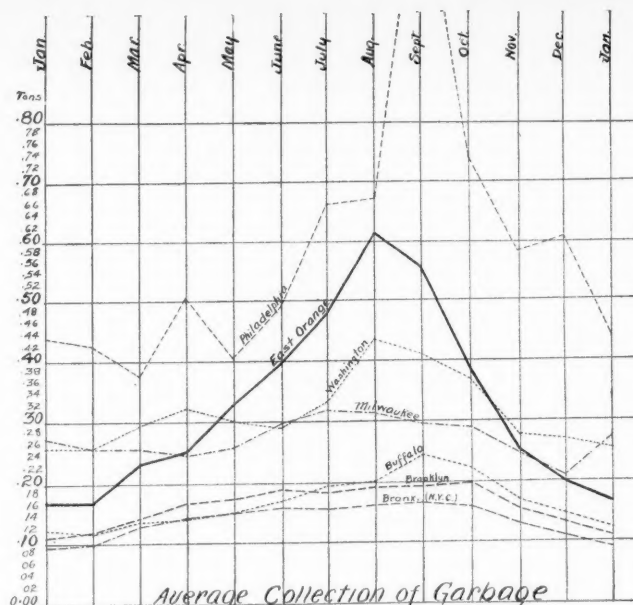
Two 60-ton destructors	\$53,000
Building, stack, etc.....	21,000
Real estate	3,500
Engineering and contingencies.....	7,750
Total	\$85,250

MAINTENANCE COST (PER DAY)

Interest at 4 per cent., depreciation at 5 per cent.....	\$19.48
Labor on 40.83 tons at 50 cents.....	20.41

Total cost per day.....\$39.89

The cost per year of the former proposition would be \$7,912, and of the latter \$14,558. Against these should be credited the present cost of disposal, \$3,000, and \$250 for decreased haul. The fuel value for boiler purposes of the garbage and waste he estimates to be \$1,000 a year,



Average Collection of Garbage
in Tons per day per 1000 Inhabitants.

GARBAGE COLLECTION IN SEVEN CITIES

and of these and ashes to be \$3,130. The net cost of the former would therefore be \$3,622, and of the latter \$8,178. As this shows a net cost of destroying the ashes of \$4,516, and there seems to be little other present argument in favor of it, it is not recommended except for reasons of sanitation, convenience and future necessity, and then only if its fuel value be utilized.

The calculation of the fuel value of the waste was based upon general practice, tests and personal experience, combined with the quantities shown on the diagrams. English waste contains more unburned fuel and their garbage less moisture than that of East Orange, which accounts for the difference in fuel values.

CALORIFIC VALUE OF ONE POUND OF AVERAGE ENGLISH WASTE

MATERIAL.	AVERAGE PER CENT. PROPORTIONS.	FUEL.	CALORIFIC VALUE.	B. T. U.
Ashes	82%	35	12,000 per lb.	3,444
Garbage	14%	35	8,000 per lb.	392
Rubbish	4%	85	5,000 per lb.	170

Total

AVERAGE EAST ORANGE WASTE

MATERIAL.	AVERAGE PER CENT. PROPORTIONS.	FUEL.	CALORIFIC VALUE.	B. T. U.
Ashes	61.4%	25	12,000 per lb.	1,842
Garbage	23.0%	30	8,000 per lb.	552
Rubbish	15.6%	85	5,000 per lb.	662

Total

AVERAGE NEW BRIGHTON WASTE

MATERIAL.	AVERAGE PER CENT. PROPORTIONS.	FUEL.	CALORIFIC VALUE.	B. T. U.
Ashes	66.2%	26.6	11,066 per lb.	1,946
Garbage	26.7%	23.0	10,233 per lb.	621
Rubbish	7.1%	85.32	9,889 per lb.	599

Total

The results obtained from the tests made last year at New Brighton are added by us for the purpose of comparison,* these tests being probably the most complete and accurate of any ever made in this country. The agreement of the two last is seen to be very close.

*See MUNICIPAL JOURNAL AND ENGINEER for December 5, 1906.

TO REMEDY PASSAIC RIVER POLLUTION

Bill Has Been Signed to Effect This—History of Agitation to This End—Provisions of the Bill—Cities and Boroughs Affected

THE signing by Governor Stokes, of New Jersey, on March 18th, of the Passaic Valley Sewer Bill, probably begins the ending of the history of the preliminaries to the actual purification of the Passaic river; a history which has covered so many years and been so complex that few others than those who have taken an active part in it can now recall it.

Agitation for the purification for the Passaic river began in the city of Paterson in 1895, in December of which year the Paterson Board of Trade applied to the Newark Board of Trade for co-operation in prevention of further pollution and urged the appointment of special committees by the Newark and Paterson Boards to secure legislation. These committees were appointed and Gov. Briggs assisted by advice and urged the desired legislation. In February, 1896, a joint committee of the Newark, Paterson and Passaic Boards of Trade and of the New England Society of the Oranges, agreed on a measure for the appointment of a special commission and appropriating \$10,000 to defray expenses. This passed the Legislature, a Commission was appointed and reported in favor of a trunk sewer along the Passaic river, presenting a bill providing for the same. Gov. Briggs in January, 1897, urged action and in March sent a special message to the Legislature accompanying the Commissioner's Report; saying that he supposed that this was too late for action at that session, but that he favored continued investigation and recommended the appointment of a special legislative committee to take charge of the subject during the recess; which committee was appointed. About this time differences arose between the city of Paterson and the other cities (of which Newark was most active), and the act was not considered by the Legislature. In January, 1898, Gov. Briggs returned to the subject, reviewed the arguments for the necessity of action; and suggested that if discharging into Newark bay would be injurious to nearby towns, the sewage might be carried to the deep water channel nearer the ocean, and urged immediate action. None was taken; but in 1899 an act was passed creating a State Sewerage Commission. This Commission reported in 1900 favoring a law to compel the cessation of sewage pollution of the river within five years. An act embodying this idea was passed prohibiting pollution after March 1, 1904, but it was believed to be defective, because it failed to provide for an alternative disposal, and it was never enforced.

Gov. Voorhees, in January, 1901, advocated granting larger powers to this Commission; also legislation creating sewerage and drainage districts, authorizing the appointment of Commissioners in such districts with power to investigate disposal methods, adopt plans and perform work, and providing for payment of bonds for this work by the municipalities interested. He later placed at the

disposal of the State Commission a sum not to exceed \$8,000 from the emergency fund for making a survey of the Passaic valley, and obtaining opinion from expert engineers. Rudolph Hering, J. J. R. Croes and William M. Brown were employed and recommended a trunk sewer from the southern boundary of Paterson to New York Bay.

Gov. Voorhees, in January, 1902, urged the passage of the law enabling this; and Gov. Murphy, in his inaugural message of the same date, urged prompt action. In 1902, the Legislature passed laws creating the Passaic Valley Sewerage District and providing for Commissioners, defining powers, etc. The Governor appointed a Commission known as the Passaic Valley District Sewerage and Drainage Commissioners. They investigated *ab initio* and found the river in a horrible state, at times containing 1,000,000,000 gallons of sewage mixed with 2,400,000,000 gallons of water. (Chicago river at its worst was a mixture of 1:4 and averaged 1:6.) The average flow in the Passaic was 1:9.9, in the Hackensack 1:39.2. The ratio of the daily sewage to the capacity of the tidal basin was 1:35 in the Passaic, 1:2830 in the Hackensack. Sewage remains in the Passaic from 6 to 14 days in the dry period. This Commission investigated all methods of purification and local applications of the same. Storage reservoirs to increase low river flows and diversions of water were rejected as too expensive or impracticable. The most effective, least offensive and expensive plan was believed to be a trunk sewer with an outlet in New York Bay; and such was recommended, providing for a population of 1,600,000, three times the present population; the cost being estimated at \$86,914,400.

As required by law, this commission reported the above to the 1903 Legislature, and a bill was enacted providing for the prosecution of this work under the same Commissioners, at a net cost not to exceed \$9,000,000, and authorizing the issuing of bonds to that amount. In this act was incorporated a provision requiring that "before any moneys are expended or obligations are incurred for any trunk or outlet sewer which shall discharge into the New York Bay, the said Board shall carefully investigate whether such discharge is likely to pollute the waters of said bay within the jurisdiction of the State of New York to such an extent or in such a degree as to cause a nuisance to persons or property within said State, and shall present the result of their investigations to the Governor, with their opinion thereon, and the reasons for their opinion." Such a report was presented June 8, 1903, giving as their opinion that the discharge would not pollute the waters of the bay; this opinion being founded upon reports from Henry M. Robert, former Chief of Engineers, United States Army, and for years president of the Harbor Line Board of New York; George S. Green, Jr., civil engineer, and for years a member of the New York Dock Department; E. W. Harrison, civil engineer; O. H. Tittmann, Superintendent of United States Coast and Geodetic Survey; William Barclay Parsons, civil engineer; and Allen N. Spooner, an engineer of

the New York Dock Department. The Governor approved the findings and the Commissioners proceeded to engage in actual work, adopt resolutions estimating the total cost, and providing for issuing corporate bonds to the amount of \$1,000,000 for beginning construction.

The Mayor and Aldermen of Paterson at once took the matter to the Supreme Court on a writ of certiorari to test the constitutionality of the law, which court sustained it, but was reversed by the Court of Errors and Appeals, whose adverse decision did not relate to the plan, but to the method of raising the money. At the outset the Commissioners had held hearings for each municipality interested, and nearly all expressed their willingness to accept the conclusions of the Commissioners; Paterson being the sole objector among the twenty municipalities which are wholly or partly in the district.

The Citizens' Association of Paterson employed Samuel M. Gray to report on the disposal of their sewage independently of other communities. This report was never made public, but his estimate of the cost of a separate disposal system was known to have been \$2,670,185, of which \$919,700 was for a sewer to the place of treatment; the annual cost and maintenance, interest and sinking fund, etc., being \$207,135. The combination plan, which provided for over six miles of intercepting sewer within the city limits of Paterson, would cost her only about \$1,500,000, and the annual cost would be less than \$100,000. Another report was made by Allen Hazen on June 30, 1906, in which he says: "I believe that the interests of Paterson will be best served by joining with other municipalities in the construction of a trunk sewer to take the sewage from the entire district requiring sewage disposal in the lower Passaic valley to a point of adequate sea water dilution either in New York Bay or in the Newark Bay near the Kill von Kull. I believe that this arrangement will be substantially better for Paterson than the separate local purification of her sewage. If, however, great objections to this arrangement should be found, or if it should be necessary to purify the sewage collected in such a trunk sewer before discharging it into salt water, then clearly, it will be for Paterson's interest to purify her own sewage nearer home."

He estimated Paterson's proportional cost of the trunk sewer at \$2,292,000 and the annual cost in 1901 at \$133,970; and for separate works a total cost of \$3,028,000, and an annual cost in 1910 of \$196,220. In spite of these reports, Paterson has opposed the proposed actions continually. Meantime riparian owners below that city have pressed suits against her for millions of dollars damages for pollution of the river, and recent judicial decisions have placed upon her the burden of liability therefor.

During the past year the several municipalities affected, under the leadership of the city of Newark, agreed upon a bill which was introduced in February, all the municipalities apparently being satisfied with its provisions. This is the bill which has just been signed by the Governor, and its provisions are as follows: Within one month after its passage, the Passaic Valley Sewerage Commission is

authorized to notify every municipality in the district that it must cease polluting the Passaic river or any of its tributaries between its mouth and the falls in Paterson after December 12, 1912, and authorizes the Passaic Valley Sewerage Commissioners to enforce the act. In case of violation after such date, the Court of Chancery is vested with special jurisdiction to enforce the act in a summary manner. After notice has been given, any municipality or municipalities in the district may apply to the Passaic Valley Commission to have the latter prepare plans, maps, etc., for the construction of an intercepting or trunk sewer, and to furnish estimates of the cost thereof; the said Commission also to prepare plans for the construction of a trunk sewer to intercept all of the sewage which may be emptied into the Passaic river within the jurisdiction of the Commission, and send an estimate of the cost of this to all municipalities affected, with an estimate of their share of the cost. At any time after the expiration of three months from this report any two or more of the municipalities affected may contract with each other and the Commission for the construction, maintenance and operation of such sewer; the cost of this to be shared in accordance with the proportionate taxable rateables in the year 1907; while the cost of maintenance shall be apportioned upon the basis of the amount of sewage which each municipality empties into the sewer. After such contract is made, the Commissioners will have full power to purchase and acquire the lands, etc., necessary for constructing the sewer and are given power of condemnation.

The next step will probably be taken by Newark and the other municipalities in requesting the Commissioners to prepare plans as provided above. Whether Paterson will join with these is yet to be seen, and it is possible that she will not decide this point until after the Commission has reported upon the estimated cost of the trunk sewer. As an accompanying bill to the above, one was introduced by Paterson authorizing any municipality in the State to construct and maintain its own sewage disposal works. Under this bill Paterson proposes to construct a disposal plant in case she decides not to enter into the trunk sewer scheme.

There is little doubt but that strong opposition will be made on the part of New York to the discharging of this sewage into the harbor. It has been the recent practice of the courts, however, to refuse to grant injunctions against the creating of a nuisance until such time as the nuisance has become actually apparent, and it would appear as though the work could not be prevented by New York through injunction. It is possible that the general government may interfere, because of the possible pollution and silting up of the harbor by such a sewer, but this also seems improbable. Whether upon the completion and use of the sewer New York may compel the purification of the sewage carried by it before discharge into the harbor, is a matter which probably will not be decided before such discharge begins; and the Commission apparently are proceeding on the theory that whether or not the sewage must be purified, the trunk sewer and

discharge into the bay seem to furnish the only solution and the possibility of compulsory purification would not alter their decision, but merely increase the cost to communities, which cost will even then be less than that of any other feasible plan, at least to most of them.

The area of the district affected is only eighty-one square miles, but it contains a considerable part of the population and wealth of the State. The total population in 1905 was 574,924, distributed in the cities and boroughs of Newark, Orange, East Orange, Bloomfield, Glenridge, Montclair, Belleville, Nutley, Paterson, Passaic, Acquackanonk, Garfield, Wallington, Rutherford, East Rutherford, Union, No. Arlington, Kearney, Harrison, East Newark.

	1902.	1905.	1906.
Net tax valuation in Essex county	\$212,820,865	\$246,868,624	\$382,903,936
Net tax valuation in Passaic county	61,385,970	73,091,884	119,714,632
Net tax valuation in Bergen county.....	3,924,415	4,641,508	5,540,140
Net tax valuation in Hudson county.....	10,719,005	15,612,622	22,338,987
Totals	\$288,850,255	\$340,214,638	\$530,497,695

It is estimated that the maximum annual cost on all items for this work, including maintenance, interest, etc., would be $13\frac{3}{4}$ cents per \$100.

Sewage Disposal at Hanley, England

THE disposal of the sewage of Hanley, England, a borough of about 67,000 population, is beset with a number of difficulties which add to the interest of the plant. The only land available is a stiff clay, and barely sufficient in area for the plant; the volume of sewage effluent is frequently far greater than the volume of water flowing down the stream into which it is discharged; the whole plant had to be constructed within about 200 yards of a large number of houses, and the sewage contains a great quantity of waste from the potteries, which is largely mineral matter, which must be removed from the sewage before treatment on beds of any kind. The plan adopted consists of detritus and septic tanks, followed by sprinkling filters, there being nine one-acre beds of the last. The sewage is distributed by power-driven distributors specially designed for rectangular beds, by which it is claimed that the amount of sewage per unit area and the intervals between doses are under complete control. These distributors are now regulated to discharge one gallon per square yard 200 times a day. The filtering material is composed of broken earthenware pots which have been subjected to an intense heat, this being placed to a depth of 4 feet 6 inches. The plant is not yet completed, but is treating 3,000,000 gallons of sewage a day and giving an excellent non-putrescible effluent.

The Municipal Bond Market

THE *American Banker* believes that the municipal bond market will be dull and stagnant for the balance of this year, although it quotes others who do not agree with it. It bases its decision, first, upon the large number of such securities which are being offered, believing that the number will be greater in 1907 than in any previous year; second, upon the favorable terms which are offered by

railroad and other securities, railroads having offered short time securities which net about 6 per cent. on the investment, which they would hardly do if they expected the money market to improve within six months.

Various bond houses are quoted as follows: New York: "Unless conditions should change quite materially we do not look for any great strengthening in the market for municipal bonds." Boston: "It is absolutely impossible to determine whether we are now at the lowest level of prices." Cleveland: "Municipal bonds will not reach a lower level because it is likely that the railroad note offerings will now decrease. . . . Nearly everything is too high except bonds, and . . . the prices of municipal bonds will in all probability advance from now on." Cincinnati: "Municipal bonds in all parts of the country seem to have reached their lowest level." Chicago: "There is a strong element of improvement in the demand for municipal bonds."

Constructing Reinforced Concrete Sewer

DURING 1906 there was constructed in South Bend, Ind., a reinforced concrete sewer, partly 72 inches diameter and partly 66 inches. The thickness of shell was 9 inches, mixed 1:2:4 in the crown and 1:3:6 in the invert. The side was made vertical from the center of the barrel to about 18 inches above the bottom for convenience in construction and strength. Steel straps 3-16 x 1 inch, spaced 12 inches between centers, surround the barrel, each rib being in three pieces, and being kept 2 inches from the inner surface. Immediately after the forms were removed, the lower half of the barrel was plastered with 1-2 inch of 1:1 cement mortar.

The excavation was in loose black soil for 4 feet, and in sand and gravel for the remainder of the depth, which averaged 18 feet. The width was 10 1-2 feet. A Potter excavating machine was used. The bottom 5 feet of trench was below ground water level, and a sub-drain, pump and rotary pump were in constant use. The invert was first built in sections to a point about 9 inches above the flow line. When this had set the side forms were placed and concrete carried up to the center of the barrel. Then the centering for the arch was placed, and an outer form, which was left open for an angle of about 70° at the top. The inner forms were not removed until about 14 days after placing the arch concrete. The concrete was made as wet as could be conveniently handled. Hoban & Roach, contractors, give as the actual cost per foot:

Concrete in sewer proper, \$2.10; reinforcement, 30c.; striking and removing forms, 45c.; setting forms and templates, 35c.; plastering, 38c.; sub-drain pipe, 33c.; labor laying drain pipe, 35c.; handling water, 45c.; excavation and back-filling, \$2.80; setting and pulling sheathing, \$1.04; tools and general expenses, 50c.; total, \$9. The bid was \$9.50. The item "handling water" included fuel, housing and rental of pump, engineer's pay and general work on pump, etc. Labor received: Engineer for excavating machine, \$3; fireman for same, \$1.65; common labor, \$1.85; engineer for pump, \$2; sub-foreman, \$2.50; carpenter, \$2.50.

NEWS OF THE MUNICIPALITIES

Divers Subjects of General Interest and Their Treatment by City Councils and Officials—Streets, Waterworks, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

Roads and Pavements

BROOKLYN, N. Y.—Bids received for \$250,000 worth of asphalt paving, 100 city blocks altogether, have been rejected by Bird S. Coler, Borough President. The last bids received averaged 2 cents per square yard lower than another lot which the city authorities had informed the contractors were higher than they would accept. It is now stated that if, after readvertising, the bids are not 15 per cent. lower they will be rejected and bids asked on other kinds of paving. It is stated that the rejected bids averaged 40 per cent. higher than those received last year.

COLUMBUS, S. C.—Having completed the waterworks, the next public improvement is to be the paving of Main street. Ways and means have been provided by the City Council in an appropriation of \$30,000, but the selection of the kind of material to be used or the method of supervising the work has not been decided on. Mayor Gibbes favors a commission to let a contract and oversee the work. In any event, an engineer or expert on paving will be employed.

DETROIT, MICH.—The purchase of materials for the use of the city asphalt plant has been recommended to the Common Council by Commissioner J. J. Haner, Commissioner of Public Works, and approved. Pulverized limestone, to the amount of 1,000 tons, was purchased at \$3.15 per ton in bags. The bid of the Indian Refining Company for asphaltic oil at \$11.25 per ton was accepted; 1,000 tons of Bermudez asphalt was taken from the A. L. Barber Asphalt Company at \$24.60 a ton. An order was also given for all Obispo asphalt that might be needed at \$24.30 a ton. Binder stone was purchased at 90 cents a ton and sand at 63 cents per cubic yard.

ERIE, PA.—With a view to minimizing the danger of grade crossings which the city is working to abolish, the Common Council passed two ordinances which had previously had the approval of the Select Council. Grade Crossing Commissioner Eichenlaub favored the ordinances, which provide that no trains consisting of more than forty cars shall be allowed to pass through the city and that a locomotive be at the head of all trains. The penalty for violation of the ordinance is not less than \$25 or more than \$100.

MARYSVILLE, CAL.—The accuracy of the grades of the tracks of the electric railroads having been questioned, City Engineer Meeks has made an official investigation and report. At various points he found errors of $+.04$, $-.20$, $+.15$, $+.09$, $+.02$, $+.03$, $+.05$, $+.20$, $+.09$, $+.10$, $+.04$, $+.08$ of a foot.

MOBILE, ALA.—The receipt from the Secretary of State of certified copies of three laws enacted by the Legislature has made Mayor P. J. Lyons very happy. They are the Greater Mobile law, the law refunding the city debt and the general paving act. Under the new paving law he says it is possible to pave the whole city. The Board of Public Works will draw up a comprehensive plan. Government and Dauphin streets will probably be continued so as to connect with the shelled county roads. The new law will permit the laying of cement sidewalks, beginning in the business section and extending to the residential districts.

WASHINGTON, D. C.—The paving season has begun with the resurfacing of Tenth street between F and G streets, and G street between Twelfth and Thirteenth streets, northwest. According to C. B. Hunt, Engineer of Highways, this work will be completed in four weeks, and in that time everything will be ready to commence resurfacing and grading Pennsylvania avenue between Sixth and Fifteenth streets northwest, which will cost approximately \$100,000.

Sewerage and Sanitation

CHATTANOOGA, TENN.—Dr. B. H. Brown, who has completed his first month's service as Food Inspector, reports a peculiar instance of fraud on the part of a dairy supplying butter. A pound roll of alleged butter was veneered with half an inch of genuine butter; the inner material was a compound of stale butter and lard. The Inspector found cause to complain of fruit stands. In one instance he was obliged to condemn fruit five times before the dealer would purchase good fruit.

CHICAGO, ILL.—Secretary of War Taft, at Washington, has made a final decision refusing the application of the Sanitary District of Chicago to divert the waters of the Calumet river into the canal. The river now flows into Lake Michigan and the movement found much opposition among shipping interests. It also involved international questions, inasmuch as the taking of the flow of the Calumet would affect ports and property in Canada.

EVANSVILLE, IND.—An extension of the boundaries of the city for the purpose of adding assessable property along the line of a sewer, has been recommended by City Engineer Saunders, who stated that it would be unfair to place the burden of the entire cost on the property owners of the city, as would be necessary if the board built the sewer without extending the corporate limits. One property owner having sixteen acres of land asked to be annexed, saying that his property, which would be drained by the sewer, is under water most of the time.

HARTFORD, CONN.—An estimate of the cost of a high-pressure water system for a fire service has been prepared by Engineer Peck, of the Water Department. The system recommended comprises 10 or 12 miles of cast-iron mains ranging in diameter from 8 to 24-inch. Triplex gas-driven pumps capable of maintaining a pressure of 300 pounds per square inch are to be installed. The cost of the power plant is to be \$277,905, and the distribution system, divided into three sections, \$418,372.

KANSAS CITY, MO.—Officials of the Water Department have turned on water in the new flow line tunnel under the Kaw river. The tunnel was built to insure the city's supply of water against interruption during heavy spring rains. Hitherto the water has been carried across on bridges, one of which, the old suspension bridge, was torn down in the flood of 1903. The tunnel is 1,125 feet long and 7 feet in diameter. Work on the line was started in November, 1905. It has cost \$100,000.

LEBANON, PA.—Replies have been received by City Solicitor Eugene D. Siegrist to inquiries sent out regarding the experience of Pennsylvania cities relative to the matter of sewerage, with special reference to the proposition to let a contract to a private corporation to provide sewerage for Lebanon. The replies have been unani-

mously against a private system of sewerage. The Mayor of Meadville says: "To me it seems necessary for the cities to own and have control of this one important public convenience." The Mayor of Wilkesbarre says: "I am strongly of the opinion that a city should build and own its sewer system." The Mayor of Erie thinks that a city should own its own conduits as well as sewers.

MONTGOMERY, ALA.—Dr. Gaston Greil, City Health Officer, has received 500 pocket sputum cups ordered some time ago for the benefit of tubercular afflicted residents of Montgomery, and they are now at the City Sanitary Office ready for distribution. The cups are to be given free to anyone desiring such apparatus.

NEW ORLEANS, LA.—Superintendent Earl in his monthly report to the Sewerage Board says that very substantial work has been shown on the water purification station contract. Excavations for the high-lift pumping station and clear-water well are practically completed and the construction of the concrete pumping engine and wall foundations is in progress.

ROCHESTER, N. Y.—The question of sewerage in the new Twenty-first Ward is under consideration. A large part of the ward which was formerly Brighton township, is from 50 to 80 feet below the level of the East Side trunk sewer. A pumping station might be put in or some system of sewage disposal adopted. In the latter case, the ward would be exempt from the expense of the purification system that will soon have to be installed for the rest of the city.

TOLEDO, O.—Announcement has been made by Chief Engineer F. I. Consaul that the Service Board has abandoned plans for emptying the new Parkwood avenue sewer into Ten Mile Creek. A plan for the construction of a relief sewer delivering into a main sewer which empties lower down in the creek, has been prepared. It is probable that this will be only a temporary arrangement and that the State Board of Health will insist on a disposal plant.

Waterworks

ALBANY, N. Y.—A gaseous taste in the water is causing widespread annoyance and no end of fault-finding. Superintendent of Public Works Bissell states that, however disagreeable the water may be in taste, it is not injurious to health. The trouble is due to the coal tar products emptied into the Hudson river from the gas works. When water is low, as at present, the tar products do not float away freely, but are pumped into the city mains. The washing process at the works goes on only a part of the time and on those days there are more complaints about the odor.

BRADFORD, PA.—The twenty-fifth annual report of the Water Department shows that the plant which cost in 1883 \$19,000, has cost up to December 31, 1906, \$400,000. The water rates are said to be the lowest of any city in the country except Detroit, Mich. To secure a more uniform water pressure as well as to provide additional storage, either a new reservoir or the enlarging of No. 2 reservoir is recommended. The population of the city is about 20,000 and the daily consumption of water 1,839,024 gallons.

EXETER, N. H.—At a recent town meeting a committee was appointed to consider the advisability of the town purchasing the Exeter Water Works, and to secure the price for the same. The committee was also authorized to secure the services of an expert. After completing its investigation the committee will hold a public meeting where all parties interested may be heard.

HARRISBURG, PA.—The water filters at Hargest's Island were recently put to a severe test. The flood of water following the breaking up of ice in the river was extraordi-

narily turbid, the test showing 2,200 parts to the million. At the same time the bacteria averaged 168,000 per cubic centimeter. On a single day the filters were cleaned fifty-eight times, for which purpose 600,000 gallons were used out of a total pumpage of 12,500,000 gallons. It was estimated that 100 tons of mud were removed.

NEGAUNEE, MICH.—Meters installed by the city a year ago have shown a saving of 20 per cent. in the cost of pumping. Water consumers do not leave their taps open and waste the water when they know it is being metered.

PATERSON, N. J.—Hundreds of citizens crowded a public hall recently and endorsed an address of Governor Stokes in favor of the conservation of potable water supplies by the State, both for the purpose of preventing floods in the lower Passaic Valley and for the supply of various municipalities. Governor Stokes explained the legal basis of the State's authority in the matter—that the State's ownership of all potable water regardless of the title to the land under the water was established by the courts. The Governor's opinion, as well as that generally held in Paterson, appears to be that it would be better for the State to undertake to build dams and store water rather than leave the work to municipalities acting separately. Morris R. Sherrord, City Engineer of Newark, made the suggestion that a third object could be accomplished by the storing of water—namely, the supply of electric power.

Street Lighting

COLUMBUS, O.—Allen W. Thurman, discussing the revelations of carelessness and incompetence at the city light plant, as shown by the Mayor's probe committee, in addition to apparently deliberate making away with a valuable stock of poles, said: "That comes from constantly changing men who are employed in these plants. You can't run a big plant like the light plant right, and keep turning out the men in charge of it every year or so. They are just getting proficient and of some value to the city when along comes a new administration and kicks them out. Then the plant and the city suffer."

DETROIT, MICH.—Municipal ownership was defeated in two Michigan villages recently. Bellevue decided against electric-light and waterworks plant. Davison voted down a proposition to bond for \$10,000 for electric-light plant.

FORT WORTH, TEX.—The referendum election held to determine whether or not the franchise of the Fort Worth Light and Power Company should be extended twenty-five years at its expiration, eight years hence, resulted in an overwhelming victory for those opposed to the franchise. The total result was 149 for and 1,225 against.

GRAND FORKS, N. D.—Data in regard to the operation of the municipal lighting plant have been given out, as follows: Fuel cost, \$1,723; salary of engineer and fireman, \$1,650; total cost of operating the plant, \$4,818. One hundred and eleven lights are in operation, making the average cost per light \$43.40, not including interest and depreciation.

GRAND RAPIDS, MICH.—The practicability of operating the city lighting plant with power supplied by the Grand Rapids & Muskegon Power Company has been favorably reported upon by S. A. Freshney, General Manager of the Board of Public Works. He states that the cost of operation has been .074 cents per lamp hour, figured at the switchboard. The average number of hours a year during which a lamp is burned is 3,741. The power company has offered to supply power at one-half cent per lamp hour. On a basis of 800 lamps this means a total expense of \$14,964. At present the cost of the city plant is \$19,626. Accordingly, the acceptance of the power company's bid is recommended, with the under-

standing that the company assumes the initial expense of the changes; that it maintains the city's steam machinery in good order for use in case of emergency; that it turns the plant over to the city at the expiration of a three-year agreement in good order.

NEWBURGH, N. Y.—A copy of the proposed contract for lighting the city for the year beginning May 1, 1907, has been submitted to the Council by Mr. E. J. Richards, manager of the Electrical Department of the Heat, Light and Power Company. It is proposed to light 320 arc lights at \$82.50 each for the year, five 65-candlepower incandescent lights of two-thirds the price of the arc lights and four 32-candlepower incandescent lights at one-third the cost of arc lights. For lighting the public buildings the company agreed to charge 10 cents per 1,000 watt hours.

SYRACUSE, N. Y.—Attorney General Jackson has received a letter from the attorneys for the Syracuse Lighting Company with a signed stipulation that the appeal of the Syracuse lighting interests from the order of the State Gas Commission, reducing the price of gas and electricity in Syracuse be dismissed without costs to either party. The Syracuse company has already announced that it will put into force the reduced rates fixed by the State Commission.

Fire and Police

BAYONNE, N. J.—Recorder Lazarus, the resourceful presiding genius of the Police Court in Bayonne, who recently permitted a woman to prescribe the penalty for her drunken husband, has hit on a new punishment for tramps. The offender whose condition inspired the novel penalty was covered with mud and he said that the last time he took a bath was four years ago. He looked the part, and the Recorder ordered that he be taken to the basement of the Police Court building and that the hose be turned on him. The sentence was carried out.

BOSTON, MASS.—Although more fires were reported during the past year than ever before, the fire loss was smaller than it has been in a decade. The uninsured loss, compared with the insured, was the smallest in twenty-five years. The total number of fires was 1,516, while the loss was \$1,246,110. The insurance paid was \$1,185,873, leaving the uninsured loss only \$9,647. There were 3,069 alarms during the year. Eleven fires caused losses of \$15,000 and two caused losses of \$100,000. The total insurance carried on buildings and contents burned was \$29,205,458.

CHICAGO, ILL.—Advocates of the double-platoon system for the Chicago Fire Department won their fight, in principle, before the Finance Committee, but it will be impossible to establish the system this year on account of lack of funds. It is reported that the committee voted unanimously in favor of the system.

NEWARK, N. J.—Terms of ten-year telephone signal contract between the Police Department and the New York and New Jersey Telephone Company are being discussed. When the present system was first installed a contract was made at \$2,500 a year. Later the price was \$2,800, and after the annexation of Vailsburg, \$3,950 was charged. The price asked now is \$6,250, on the ground that higher prices are necessary because the use of the service is increasing every year, and because of the advance in the cost of materials.

PUEBLO, COL.—Fire Chief McCartin has installed a new device for the purpose of warning all persons near the station in case of a fire to clear the way. This is a large red electric globe suspended in the middle of the street in front of the station, which is lit as soon as the drop falls.

PULASKI, N. Y.—The Ringgold Fire Company is en-

deavoring to improve its fire alarm service. The alarm bell in the tower of the engine house is cracked and does not sound loudly. The manager of the local telephone company states that he could install and maintain a system of individual fire alarm call bells for about \$100 a year.

WILMINGTON, DEL.—A certified copy of the new law providing for a pension fund for the police of the city has been received from Secretary of State Cahall. The city is required to pay \$2,000 annually to the fund, which amount will be appropriated by City Council on July 1. When the fund reaches \$5,000, pensions will be paid indigent policemen after long service.

WILMINGTON, N. C.—During 1906 the Fire Department responded to 161 alarms, of which 123 were by bell, and 38 by telephone. Of the fires, 115 occurred in frame and 20 in brick buildings, and all but five were confined to the structures in which they originated. The value of buildings and contents in which fires occurred was \$2,401,718; on which the total insurance was \$2,239,075. The insured loss was \$85,393, and the uninsured loss \$8,449, making the total of all fire losses \$93,842.

Government and Finance

BUFFALO, N. Y.—Comptroller Zimmerman has finished his work on the estimates. The total valuation of property in the city is \$289,427,630, of which \$7,173,000 is personal, \$17,827,550 special franchises, and the balance real estate. The total of the estimate as it leaves the Comptroller is \$8,868,680, of which \$5,830,017 must be raised by taxes, making a rate of \$20.14. Some of the items of the budget are: Water, \$839,736; Engineering Bureau, \$454,130; Lamps Bureau, \$304,647; Building Bureau, \$223,354; Poor, \$120,115; Fire, \$889,917; Police, \$794,550; Parks, \$194,738; Schools, \$1,285,867. This item was printed under caption Rochester in issue of March 20.

MANCHESTER, N. H.—The appropriation bill for 1907 contains the following items: General Department, \$129,900; Department of Taxes (State and county), \$141,783; Assessors, \$10,500; Engineer, \$2,000; Streets and Sewers, \$175,000; School Department, \$147,575; Fire Department and Hydrant Service \$114,955; Public Buildings, \$44,550; Health, \$61,870; Police Department, \$61,870; City Library, \$8,000; Charities etc., \$20,425; Street Lighting, \$58,000. Total, \$931,558. Estimated receipts, \$250,000. Net, \$681,558.

MEMPHIS, TENN.—The new Memphis charter which has been adopted by the Legislature extends the city limits about two miles north, east and south. A President and four Commissioners appointed by the Governor will govern the city until 1908, when an election will be held. The President will receive \$6,500 a year and the Commissioners \$2,500 each. The Commission has legislative and executive powers and authority to appoint a City Comptroller, Treasurer and Counsellor. The effect of the charter was to abolish the former city government.

NASHVILLE, TENN.—The lower house of the Tennessee Legislature recently ordered the arrest of the Mayor and City Council of Nashville and required that the members be brought before the bar of the House. The Council is charged with contempt, the members having recently adopted a resolution bitterly criticising Speaker Cunningham for a speech he made on the floor of the House in which he is alleged to have said the Councilmen were controlled by a local telephone company. The city officials have, by advice of counsel, refused to appear, and will fight the case.

MINNEAPOLIS, MINN.—A municipal ownership bill has been introduced in the House by W. I. Nolan, of Minne-

apolis, covering the main provisions of the Muller law of Illinois. The bill permits municipalities, after a vote by the people, to acquire any public utilities and, instead of bonding the city, give mortgages on the property acquired.

PHILADELPHIA, PA.—As a sequel of the failure of the city to receive bids for \$5,000,000 of 3-1-2 per cent., 30-year bonds, comes a message from Mayor John Weaver to the City Council, in which he advocates a Municipal Bank. The city's account runs from \$13,000,000 to \$20,000,000 a year, for which it receives 2 per cent. on balances, while, as the Mayor says, the banks themselves are now getting 6 per cent. for the money. The influence of a City Bank would be sufficient to float a loan at 3 1-2 per cent., says the Mayor.

Refuse Collection and Disposal

BOSTON, MASS.—The joint committee of the city government that has been investigating the subject of disposing of the city's refuse are now in a deadlock over the passage of some resolutions that have been drawn up. The resolutions are: Favoring the building of temporary structures on Fort Hill Wharf sufficient to abate the nuisance; that it is not expedient to continue the utilization contract after it expires; that the proper way to dispose of waste is by incineration and utilization plants located in different parts of the city.

MERIDEN, CONN.—Mayor Reilly has appealed to the citizens of Meriden to devote their time on May 1 to cleaning their yards. The Mayor hopes to effect one of the greatest general cleanings the city has ever received so that it will really be a "Silver City."

NEWARK, N. J.—A new method, the district system, of caring for the city streets has been inaugurated. The city has been divided into seventeen districts, each in charge of a foreman, whose duties will include the cleaning and repair of paving, curbing and sidewalks. Weekly reports will be made by the district foreman to General Superintendent Shipman who will report to the Board of Works. While the new organization is expected to increase the efficiency of the force, it is recognized that the appropriation of \$170,000 is insufficient to accomplish the work that the public demands.

ROCHESTER, N. Y.—A new system of keeping tabs on the laborers employed by the city, in the Streets and Sewer Bureau, especially in cleaning the streets, has been explained to the district foreman. Every work day morning the district foreman must fill out and leave at the Public Works office, a sheet showing where each man and team is working, the kind of work they are doing, when sent out and other facts that may be pertinent.

Parks and City Beauty

CHATTANOOGA, TENN.—The Park Commission has plans for beautifying the city which it hopes to carry out when its share of the bond issue becomes available. A boulevard is planned beginning at a point near the west entrance of the cemetery and following the edge of the park grounds on around the cemetery back to the starting point. An artificial lake a mile and a half long can easily be made in the same vicinity. An excellent idea is that of planting grass on the sides of Cameron hill where water washes gullies in the red clay soil, resulting in an unsightly appearance. The parking of Broad street is considered in co-operation with the street railway people, who are willing to put up ornamental poles.

CHICAGO, ILL.—A great outer parkway which shall swing 1,000 feet out into the lake, connecting by boulevards and a chain of lagoons Grant and Jackson parks, designed by D. H. Burnham, has been approved by the

Illinois General Assembly. The vast driveway which is to join the boulevard systems of the north and south side parks will be located on the new park and follow the lake shore from Fifty-sixth street to about Washington street, from which point it will rise gradually, crossing the freight yards of the Illinois Central Railroad, thence across the river on a huge bridge effecting a juncture with Lincoln Park boulevard at Michigan street. The completion of the project is expected to take ten years.

CINCINNATI, O.—Cincinnati school children have been given copies of a circular containing the substance of certain ordinances which they are asked to help enforce. "Not on account of their being laws, but because you are a good citizen and take civic pride in your city," the circular says. The ordinances mentioned are those making it unlawful to injure trees, to kill birds or destroy birds' eggs, to throw paper or rubbish in streets and to spit on the sidewalk.

HARRISBURG, PA.—Harrisburg's filter plant, which is located on an island in the Susquehanna river, is to be transferred into a sixteen-acre city park. The big concrete dyke which encloses the filter works is to be planted with vines to cover and to beautify its bare surface and the riverside trees are to be pruned and protected. The point of the island, which is fringed with trees and bushes, has a long shallow beach which is a favorite wading place for children.

INDEPENDENCE, KAN.—An ordinance to regulate the planting of shade trees in city streets has been introduced into the City Council. It is proposed to create a commission composed of the Street and Alley Committee and the City Engineer to have jurisdiction subject to the general provisions of the ordinance. It is intended to apply more particularly to streets that are being improved.

NEW HAVEN, CONN.—The Park Commissioners have petitioned the Board of Aldermen for permission to erect at the corner of Green street, where the old pump now stands, the so-called Bennett Memorial. It is to be a drinking fountain, massive and handsome in design, to be paid for out of the fund devised in his will by the late Philo S. Bennett. The design is at present in the hands of Professor Weir, of the Yale Art School.

OGDEN, UTAH.—Ogden proposes to become a city of beautiful parks under the systematic direction of a Board of Park Commissioners. The House has passed Randall's bill providing that cities of more than 15,000 population may have a Board of Park Commissioners. The Commissioners are to be appointed by the Mayor and City Council or Board of Trustees.

TORONTO, ONT.—The Guild of Civic Art have prepared a plan of improvements for the city of Toronto. The object of the plan is to provide for a comprehensive scheme of diagonal and other new streets, thus giving better transportation facilities, and a system of parkways connecting existing parks. Two great broad streets have been planned running from the center of the city, one in a northwesterly, the other in a northeasterly direction. These streets are for the purpose of giving outlying districts more direct communication with the center of the city. They will be laid out with the best facilities for transportation, sewage, electric-lighting and power conduits. A broad central street running north and south is planned also. The parkway system comprises a park driveway extending practically along the whole water front, along the valleys of the Don and Humber to Scarborough Heights, thus girdling the whole city.

WASHINGTON, D. C.—Commissioner Henry B. F. Macfarland has received a letter from Vice-President Rea of the Pennsylvania Railroad stating, in behalf of the railroads entering Washington, that they are adopting meas-

ures and making experiments so as to effectively abate the emission of smoke from locomotives in the District. It is understood that the use of coke is referred to. The Commissioner, while gratified at the prospect, believes that the matter should not be left to the voluntary action of the railroads, but that application should again be made to Congress for an extension of the smoke law so as to apply to railroads. Estimates that have been made as to the money damage to stocks in stores and domestic furnishing and clothing place the loss at \$1,000,000 a year, an amount which the Commissioner is inclined to accept as correct. The damage to public buildings is another large item.

YORK, PA.—The acceptance by the city of the old reservoir site on South Queen street as a park and public playgrounds, in accordance with the offer recently made by the York Water Company, is being advocated by the Municipal League. The land is now unimproved and unoccupied and is in an excellent location. The Water Company has offered the land to the city with the proviso that the city does not give a franchise to a competing company or operate their own works. The land is valuable and could be cut up into lots and sold by the company for a good price.

Rapid Transit

CHICAGO, ILL.—A meeting held under the auspices of the Strap Hangers' League, an organization opposed to immediate condemnation proceedings against the street railway companies, was addressed by Walter L. Fisher. The speaker made the point that it would be easier to sell bonds for the purchase of the railroad properties after they had been improved and reconstructed, because it would be possible to lay before the prospective investors a full statement of receipts and expenditures which would be available to meet payments on account of the bonds. No difficulty is anticipated by the speaker in obtaining the 60 per cent. vote necessary to decide on the purchase and operation of the roads, whenever it is clear that such act would be a good business proposition.

FLUSHING, N. Y.—Unsatisfactory trolley service is the object of the ire of the Flushing Association. District Attorney Darrin has been appealed to by committees from various sections of Queens Borough and he will investigate and bring the matter to the attention of the Grand Jury.

NEW YORK, N. Y.—In replying to a letter from Mr. Frank Sprague regarding electrical equipment for subway trains, Mr. L. B. Stillwell reviews the subject of the relation of speed and capacity. Subway cars were equipped with motors designed to give the express trains a speed of 25 miles per hour. This means that each eight-car train must consist of cars having an aggregate of 2,000 horsepower in motors—although some cars may not be provided with motors at all. Mr. Sprague advocates the equipment of each car with two 100-horsepower motors—1,600 horsepower to each express train. Both engineers agree as to the fact that a greater density of train movement and consequent greater capacity is possible under a 25-mile schedule than under a 30-mile schedule. The same reasoning may be made to show that more trains can be operated under a 20-mile schedule. If capacity were the only consideration, a moving platform would furnish the best solution. However, as the underground road was built primarily for transit that should be rapid, Mr. Stillwell believes that speed is paramount and that a system of car equipment that leaves open an opportunity for the development of even higher speed is best.

TROY, N. Y.—The Board of Contract and Supply recently received bids for a franchise for a street railway. The railroad is to run from the corner of Second avenue and Eighth street to the outlying district in the East End. According to the terms a minimum value of \$7,500 was set. The United Traction Company bid \$7,642.25 and Mr. Joseph A. Powers increased the bid one dollar. The opinion of Corporation Counsel George B. Wellington was asked. He submitted the opinion that under the law the franchise was to be granted to a railroad corporation and could not be granted to an individual. The franchise was accordingly given to the Union Traction Company.

Miscellaneous

BUFFALO, N. Y.—Health Commissioner Wende has proposed two new ordinances. One prohibits the sale or use of gas stoves without being properly connected with chimneys, and imposes a penalty of from \$5 to \$100 for each violation. The other ordinance prohibits the distribution of medicine samples, without a permit, recommended by the Health Commissioner and issued by the Mayor, for which a fee of \$25 a year must be paid.

ELMIRA, N. Y.—The Elmira Chamber of Commerce is actively engaged in the improvement of the city. To assist in the work, Secretary Roy S. Smith has drawn up a list of thirty definite objects to be sought for. Among them are: Induce the New York Central to build a railroad to the city; bring the Waverly and Corning Interurban Railway to the city; induce the Lehigh Valley Railway to relocate its line so as to bring the main line to the city; provide for a Union Station; establish public playgrounds; install a system of public baths; improve the river front; establish a permanent exposition of Elmira-made goods; have an "All-Elmira Day" celebration.

HOLYOKE, MASS.—The Board of Public Works has submitted to Mayor N. P. Avery an estimate of the cost of purchasing and maintaining eight teams for city work. Sixteen horses are figured at \$250 each; eight wagons at \$250; sixteen sets of harness at \$35, and sixteen blankets at \$3, making a total of \$6,608. Regarding maintenance, \$12 per week is figured for drivers; shoeing, \$3.50 per month for each horse; repairs, \$25 per month; a total of \$8,268 per year. The cost of hiring sixteen carts, as is done now, is estimated at \$11,268. Attention is called to the incidental advantage of having teams and men under the direct control of the Board.

KNOXVILLE, TENN.—By a majority of 2,000 votes, Knoxville has voted that saloons must go. The election was held for the purpose of ascertaining public sentiment, in accordance with a State law. An act of the Legislature itself will be passed abolishing the present charter and reincorporating without saloons. Six months' notice will be given the saloons to close up their business. On election day 5,000 women and children paraded the streets before polls opened, and all during the day women were stationed at the polls working for the prohibition cause.

MONTGOMERY, ALA.—A bill signed by the Governor gives the towns of the State with more than 400 inhabitants the right to provide drainage and other municipal accommodations. This was presented by Senator Miller primarily to aid Woodlawn.

NEW YORK, N. Y.—Several hundred city employees living on Staten Island who are employed in the offices of other boroughs have for some time been given the privilege of riding on the municipal ferryboats free of charge. It is said that the right has been abused to such an extent that Dock Commissioner Bensei has decided to abolish all free riding except in the case of uniformed men.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Municipal Interest

BOULEVARD IMPROVEMENT.

Wolff Chemical Co. vs. Philadelphia.—One million dollars was appropriated to improve the Northeast Boulevard and the Council proposed to use half of it to pay land damages. The Wolff Co. brought an injunction suit. The city demurred on the ground that a corporation could not maintain a taxpayer's bill and that the land damage came properly within the appropriation. The Court of Common Pleas sustained the city's contention. On appeal to the Supreme Court, Judge Mestrezat decides that a corporation has the same right as an individual to see that taxpayers' money is properly applied; that the use of money to pay for "opening" is not the same as for "continuing improvement" of the boulevard, for there could be no improvement until it became a boulevard by being opened. If a fund voted for a specific purpose could be used for other purposes it would be a fraud upon the voters who sanctioned the increase in indebtedness of the city.—Supreme Court, Philadelphia, Pa.

LOCATION OF BUILDINGS.

Edwards vs. Goldsboro.—The validity of a contract by a municipal corporation to locate public buildings at a certain place, in consideration of a donation toward the expense, is denied.—North Carolina Court.

TORTS OF CITY OFFICERS.

Clayman vs. City of New York.—In this case the City of New York was held not liable for the wrongful arrest of a person violating the city ordinance making it a misdemeanor to sweep rubbish on the sidewalk. It appears that a street sweeper reported the violation to a policeman, who did not see the offense committed, and the plaintiff was arrested without a warrant. The court held that the wrong was done by the police officer, acting in a governmental capacity, for which the city was not liable under the doctrine of *respondet superior*.—New York Appellate.

CAB STANDS.

Belmont Hotel vs. McKenna.—Judge Foster, in General Sessions, sustained a fine imposed by Magistrate Walsh upon Alexander McKenna, a cabman. McKenna had been arrested and fined for taking up a position in front of the Hotel Belmont in East Forty-second street. He carried his case to General Sessions on appeal. Judge Foster's opinion, which is concurred in by all the Judges now in the city, virtually reverses the municipal ordinance which makes every street corner a public hack stand after 10 o'clock at night.—General Sessions, New York City.

CLOSING QUARRY

John Doe vs. Kelso.—An ordinance absolutely prohibiting the opening or working of stone quarries within certain prescribed limits, without reference to injury to the public or to other property, is held to be a denial of due process of law.—California Court.

NEWS OF THE SOCIETIES

Municipal Engineers of the City of New York.—At the regular meeting to be held on March 27 in the Engineering Societies Building, 29 West Thirty-ninth street, Manhattan, a paper will be presented by Mr. Alexander Simpson Farmer, Assistant Engineer, Aqueduct Commission, entitled "The Geology of Long Island and Its Practical Relation to Underground Water Supplies." The lecture will be illustrated by lantern slides. After the meeting a luncheon will be served.

International Association of Chiefs of Police.—Major Richard Sylvester the president, believes that the meeting to be held at Norfolk, Va., June 18, will be the most important and interesting ever held. It is the intention of the officials of the city of Norfolk to provide for them an interesting entertainment at the Princess Anne Hotel, Virginia Beach. About 200 delegates are expected. The meetings will be held in the auditorium of the Exposition grounds. One of the features of the meeting will be a parade in uniform. A question to be discussed is the proposition to have keepers of prisons notify the association of the discharge of prisoners.

Harvard Engineering Society.—The ninth annual dinner was given, March 2, at the Harvard Union, Cambridge, Mass. Professor L. N. Hollis, chairman of the Division of Engineering, presided. The speakers of the evening were: G. S. Rice, '70, chief engineer Rapid Transit Railroad Commission, New York; J. R. Worcester, '82, consulting engineer, Boston, Mass.; Franklin Remington, '87, president, Foundation Co., New York; F. L. Gilman, '95, chief engineer, Western Electric Co., New York; J. A. Moyer, '99, chief of the Computing Department, General Electric Co., Lynn, Mass.; B. M. Hale, '04, assistant engineer Rapid Transit Railroad Commission, New York. It is proposed to establish a Harvard Engineering Society in New York City and possibly in other large engineering centers where the number of Harvard graduates interested in engineering may warrant.

International Association of Fire Engineers.—The Board of Directors at a recent meeting in Washington, D. C., made preliminary arrangements for the convention to be held in Washington, October 8-11. The following questions and topics to be discussed were decided on: "Are Shingle Roofs in Cities Conflagration Hazards?" by Chief T. W. Haney, Jacksonville, Fla.; "Fire Protection for Private Corporations," by Herbert Heston, Fire Marshal, Philadelphia, Pa.; "Is Fire Prevention of More Importance Than Fire Extinguishment?" by Chief G. A. Wallace, Cleveland, O., and Mr. Henley, Chief Inspector, St. Louis Fire Prevention Bureau; "Fireboat Protection," by Chief B. J. McConnell, Buffalo, N. Y.; "Extinguishing Fires in Cellars and Sub-Cellars," by Chief C. E. Swingley, St. Louis, Mo.; "Electric Fires—Their Cause and Prevention," by Mr. Merrill, secretary National Fire Protection Association, Chicago, Ill.; "What Are the Dangers of Carbon-Bisulphide in a Liquid Form, and What Are the Best Methods for Handling and Storage of Same?" by Chief I. R. Canterbury, Minneapolis, Minn.; "How to Prevent Quarter Cracks in Horses' Hoofs and the Care of Fire Department Horses," by Dr. C. B. Robinson, District Veterinarian. The

following test of apparatus will be made: First test will consist of throwing water from twenty-four single lines of hose, with 1 1/4 inch nozzles, so as to form a water curtain as well as a solid column of streams. Second test: The water tower will be extended seventy-five feet and water will be thrown from a 3-inch nozzle. The two turret pipes on the water tower will also be used, one pipe having a 2-inch nozzle and the other a 2 1/2-inch nozzle. Water will be thrown from two hook and ladder tower pipes extending thirty-five feet, with 2-inch nozzles. Water will be thrown, too, from four wagon monitor pipes, with 1 1/2-inch and 2-inch nozzles. Third test: Six deluge sets will be used, throwing 2-inch and 2 1/2-inch streams.

Calendar of Meetings

- March 27.
Municipal Engineers of the City of New York.—Regular meeting, Engineering Societies Building, 29 West Thirty-ninth street, Manhattan, New York.—C. D. Pollock, Secretary.
- April 3.
American Society of Civil Engineers.—Regular meeting, House of the Society, 220 West Fifty-seventh street, New York City.—Charles Warren Hunt, Secretary.
- April 3.
Western Society of Civil Engineers.—Regular meeting.—J. H. Warden, Secretary, 1737 Monadnock Block, Chicago, Ill.
- April 18-21.
Southwestern Gas, Electric and Street Railway Association.—Annual meeting, San Antonio, Tex.—Frank C. Duffey, Secretary, Beaumont, Tex.
- May 8-10.
Texas State Firemen's Association.—Convention, McKinney, Tex.—W. M. Abernathy, Mayor, Chairman, Committee on Entertainment.
- May 28-30.
American Society of Mechanical Engineers.—Spring meeting, Indianapolis, Ind.—Calvin W. Rice, Secretary, 12 West Twenty-first street, New York.
- June 1-4.
American Anti-Tuberculosis League.—Annual convention, Atlantic City, N. J.—Dr. George Brown, Atlanta, Ga., President; Dr. Edward Guion, 1408 Atlantic avenue, Atlantic City, N. J., Vice-President.
- June 11-15.
American Water Works Association.—Twenty-seventh annual convention, Toronto, Ontario, Canada.—Dabney H. Maury, President; J. M. Diven, Charleston, S. C., Secretary.
- June 12.
National Conference of Charities and Correction.—Thirty-third Conference, Minneapolis, Minn.
- June 18.
International Association of Chiefs of Police.—Annual convention, Auditorium, Jamestown Exposition Grounds.—Major Richard Sylvester, President, Washington, D. C.
- June 18-20.
Municipal League of Indiana.—Meeting, Logansport, Ind.—Councilman J. T. McNary, Chairman, Local Committee, Logansport.
- June 20-22.
The Playground Association of America.—First Annual meeting, Chicago, Ill.—Dr. H. S. Curtis, Secretary.
- August 6-8.
American Association of Park Superintendents.—Annual convention, Toronto, Ont.—F. L. Mulford, Secretary, Harrisburg, Pa.
- August 20-22.
The International Association of Municipal Electricians.—Annual convention, Jamestown Exposition, Norfolk, Va.—F. P. Foster, Secretary, Corning, N. Y.
- August 20-23.
New York State Firemen's Association.—Convention, Elmira, N. Y.
- September 19-21.
League of American Municipalities.—Annual convention, Jamestown Exposition.—John MacVicar, Secretary, Des Moines, Ill.
- October 8-11.
International Association of Fire Engineers.—Thirty-fifth Annual Convention, Washington, D. C.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—
Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Buildings, Bridges and
Street Railways—Sanitation, Garbage and Waste Disposal—Police, Parks and
Miscellaneous—Proposals and Awards

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Street Improvements				
Ohio	Lorain	March 25, noon	Paving Everett St., any material	Custer Snyder, City Auditor.
New York	Brooklyn	March 27, 11 A.M.	Grading and paving several streets	Bird S. Coler, Boro President.
New Jersey	Hoboken	March 27, 8 P.M.	Grading and Belgian block on Madison St.	James H. Londrigan, City Clerk.
Illinois	Chicago	March 28, 11 A.M.	Wood or asphalt pavement for bridges	Wm. L. O'Connell, Com'r Pub. Wks.
Missouri	Kansas City	March 28, 11 A.M.	Artificial stone curb, 6 contracts; brick or block pavement, 13 contracts	E. A. Harper, City Engineer.
Minnesota	St. Paul	March 28, 2 P.M.	Grading 3 sts., laying asphalt on one	R. L. Gorman, Clk. Bd. Pub. Wks.
Iowa	Osceola	March 28, 7:30 P.M.	Constructing 27,000 sq. yds. brick pavement; 5,000 ft. cement curb during 1927	W. N. Temple, City Clerk.
Ohio	Xenia	March 28	Constructing 3 mile macadam road	Wm. Dadds, County Auditor.
Pennsylvania	Easton	March 28	Constructing 7,800 ft. road, 16 ft. wide	J. W. Hunter, Com'r Harrisburg.
Iowa	Sigourney	March 28	Paving with asphalt on concrete base	Clerk, City Council.
Indiana	Newport	March 29, 10 A.M.	Building 12 gravel roads, 35 miles, Helt twp.	H. T. Payne, County Auditor.
Ohio	St. Clairsville	March 29, noon	Paving 19,000 sq. yds. brick Main St.	John C. Nichols, City Clerk.
New York	Buffalo	March 29, 5 P.M.	Paving five streets; separate bids	F. G. Ward, Com'r Pub. Works.
Kansas	Fort Leavenworth	March 29	Granolithic walks, steps, curbs and gutters	Capt. Jas. E. Normoyle, Q. M.
Michigan	Hastings	March 29	Paving 11,912 sq. yds. brick on gravel or concrete; 3,584 ft. curb; 4,350 yds. excavation and 2,690 lin. ft. storm sewer	Jas. M. Patten, City Clerk.
Ohio	Cincinnati	March 29	Grading, granite block paving, curb, etc., Highland Ave.; also Albany Ave. wood blk.	M. J. Keefe, Clk. Bd. Pub. Serv.
Ohio	Delaware	March 29	Laying 10,000 ft. cement walk or stone flag	F. B. King, Town Clerk.
Wisconsin	Hoboken	March 29	Paving 2 sts., brick or macadam	City Clerk.
Ohio	Cleveland	March 30, 11 A.M.	Grading, draining and paving Northfield Road	A. B. Lea, County Engineer.
District of Columbia	Washington	March 30, noon	Laying asphalt block pavements; also paving streets and avenues with sheet asphalt	H. B. F. Macfarland, Commissioner.
Ohio	Peebles	March 30	Grading and macadamizing Railroad Street	J. E. Rogers, Village Clerk.
Minnesota	St. Paul	April 1, 10 A.M.	Grading and macadamizing road	Edward G. Grahmer, Co. Auditor.
Pennsylvania	Chester	April 1, 10 A.M.	Laying curb; also cement and other pavement	Charles Hoberger, Chm. Sdwk. Com.
New York	New York	April 1, 11 A.M.	Sidewalks, curbs, etc., various sts.	Joseph Bermet, Boro Queens.
Ohio	Cincinnati	April 1, noon	Pave 1st Ave., brick, S. Hudson Ave., macadam	M. J. Keefe, Clk. Bd. Pub. Serv.
Indiana	Washington	April 1, 2 P.M.	Constructing two gravel roads	Davies County Commissioners.
North Dakota	Grand Forks	April 1, 5 P.M.	Constructing sidewalks during year	W. V. O'Connor, City Auditor.
North Dakota	Fargo	April 1, 5 P.M.	Building sidewalks during yr.; all materials	N. C. Morgan, City Auditor.
New York	Port Chester	April 1, 8 P.M.	Macadam, 11,700 yds.; brick, 12,400 yds.; curb, 8,750 ft.; exc. 3,000 yds., etc.	C. D. Gamp, Village Clerk.
Indiana	Lebanon	April 2, 10 A.M.	Constructing or repairing 14 streets and concrete bridges	Boone County Commissioners.
Indiana	Winchester	April 2, 1 P.M.	Paving 47,380 lin. ft. 4 rds. crushed stone	Mack Poque, County Auditor.
Indiana	Vincennes	April 2, 1 P.M.	Constructing 1,448 ft. of road	John T. Scott, County Auditor.
Indiana	Brownstown	April 2, 1 P.M.	Constructing four gravel roads	H. W. Wacker, County Auditor.
Indiana	Covington	April 2	Constructing 4 1/2 miles crushed stone and 4 miles gravel road	Wm. B. LaBaw, Co. Surveyor.
New York	Brooklyn	April 3, 11 A.M.	Paving, curb, etc., 15 streets	Bird S. Coler, Boro President.
West Virginia	Huntington	April 3, noon	Repairing all Co. roads; no contractor will be awarded in aggregate over 10 miles	F. F. McCullough, County Clerk.
Illinois	Chicago	April 3, 3 P.M.	Changes in driveway, etc., U. S. Post Office	J. E. Rogers, Washington, D. C.
Kansas	Ottawa	April 3, 5 P.M.	Grading, concrete curbing, 2 courses vit. brick, 13,000 sq. yds. S. Main St.	W. O. Myers, City Engineer.
Ohio	Columbus	April 3	Constructing 2 miles State road	Sam Huston, Highway Com'r.
Iowa	Des Moines	April 4, 11 A.M.	Laying 1,010 sq. yds. brick in alley; also 5,670 ft. Portland cement curb, 3 sts.	W. W. Wise, Bd. Pub. Works.
Ohio	Cincinnati	April 4	Grading, granite paving, curb, etc., Bd way; also McMillen St., wood block	M. J. Keefe, Clk. Bd. Pub. Serv.
Indiana	Vincennes	April 5, 2 P.M.	Constructing 22,828 ft. gravel road	John T. Scott, County Auditor.
Wisconsin	Marinette	April 6, 2 P.M.	Paving 3 sts. brick; one, macadam	Jacob Wittig, Chm. B. P. W.
Wisconsin	Oshkosh	April 6	Paving, grading and curbing certain sts.	Otto C. Laabs, City Clerk.
Ohio	Cincinnati	April 8, noon	Brick paving, sandstone curb, 2 sts., cost, \$14,699	M. J. Keefe, Clk. Bd. Pub. Serv.
New York	Binghamton	April 8, 8 P.M.	Repaving 35,778 sq. yds. brick, 6-in. concrete, 5,965 cu. yds., and excavation 10,780 cu. yds., 4 sts.; also 2 bridges with wood block on concrete	S. M. Baird, City Engineer.
Ohio	Cincinnati	April 9, noon	Brick paving, curb, drain, etc., Trade St.	M. J. Keefe, Clk. Bd. Pub. Serv.
Ohio	Cleveland	April 13, 11 A.M.	Grading, draining and paving Brecksville rd.	A. B. Lea, County Engineer.
Ohio	Celina	April 13	Grading, gravel or macadam, etc., Will road	M. Lutz, County Engineer.
Ohio	Willoughby	April 15, noon	Grading, brick paving and curb, Erie St.	C. C. Jenkins, Village Clerk.
Kentucky	Ashland	April 17	Laying 30,000 yds. brick on concrete and 19,000 ft. concrete curb and gutter	J. W. Bosley, City Engineer.
Minnesota	Duluth	April 20	Paving blocks, asphalt, tar macadam or creosoted block	Thomas F. McGilvray, City Eng.
Water Supply				
Illinois	Chicago	March 28, 11 A.M.	12,140 tons c. i. pipe and 338 tons specials	Wm. L. O'Connell, Com'r Pub. Wks.
Minnesota	Gibbon	March 28, 7 P.M.	Constructing waterworks, 9,400 ft. 6 and 4-in. pipe, 60,000 gal. steel tower and tank, engine house	D. P. Ashburn, Village Clerk.
New Jersey	Orange	March 28, 8 P.M.	Boilers and chimney for new pumping plant	W. B. Gano, City Clerk.
Wisconsin	Alma Center	March 29, 7:30 P.M.	Constructing 6,000 ft. 4, 6 and 8-in. c. i. pipe, specials, etc.; also for 200 gal. pump, 16 h. p. gasoline engine, 30,000 gal. tank on 30-ft. tower, 8-in. well, 400 ft. deep	J. T. Duxbury, Village Clerk.
Colorado	Fort Lyon	March 30, 11 A.M.	Constructing 100,000-gal. steel water tank	H. H. Rousseau, Navy Dept., Washington, D. C.
Louisiana	Bunkie	April 1	Material for waterworks	O'Neill Eng. Co., Dallas, Tex.
Alabama	Guntersville	April 2, 4 P.M.	Constructing waterworks; inc. 200,000-gal. brick and concrete reservoir; 50-h.p. boiler; 1 1/2 miles 4 to 10-in. main; hydrants, valves, pumping station, etc.	D. Isbell, Mayor.
Louisiana	Crowley	April 2, 6 P.M.	Constructing 20,000 ft. 6-in. mains	Shelby Taylor, Mayor

Water Supply—Continued

Illinois.....	Canton.....	April 2, 7 P.M.	Drilling deep well.....	Joseph Waugh, City Clerk.
Pennsylvania.....	Austin.....	April 4, 8 P.M.	Furnishing 300 tons c. i. pipe, 50 fire hydrants and valves, laying 4 miles 4, 6, 8-in. pipe, valves, etc., 2 gas engines, pumps, pumping station and concrete reservoir.....	J. F. Witmer, Buffalo, N. Y., Eng'r.
New York.....	Yonkers.....	April 4, 8 P.M.	Constructing filtration plant; 2 covered masonry sand filters, and appurtenances.....	J. J. Devitt, Pres. Water Board.
Georgia.....	Atlanta.....	April 10, 4 P.M.	Furnishing approximately 30,450 ft. 8 to 36-in. c. i. pipe and fittings.....	Park Woodward, Gen. Man. Water Com'rs.
Georgia.....	Atlanta.....	April 10, 4 P.M.	Building 4,000,000-gal. pressure filter plant, and fur. 30,450 ft. c. i. pipe 8-36-in. and specials.....	Park Woodward, Gen. Man. B. W. C.
Wisconsin.....	Bruce.....	April 10.....	Constructing waterworks; cost, \$8,000-\$10,000.....	Wm. Blackburn, Dep. City Clerk.
Montana.....	Billings.....	April 10.....	Constructing \$300,000 municipal waterworks.....	Henry Gerharz, City Engineer.
Connecticut.....	New London.....	April 15, noon.....	Laying 11,350 ft. 20-in. and 5,150 ft. 24-in. trench, 550 ft. 24-in. pipe in tunnel; also specials.....	W. H. Richards, Water Eng'r. R. C. Laurie, City Sec'y-Treas. Elmer G. Prior, Clk. W. W. Com.
Saskatchewan.....	Battleford.....	April 15.....	Constructing water works force main.....	
Ohio.....	Cincinnati.....	April 16, noon.....	Laying 12,750 ft. 16-20-in. c. i. pipe, etc.....	
Pennsylvania.....	McKeesport.....	April 16, 2 P.M.	Laying 8 to 30-in. mains, inc. intake line; 6,000,000-gal. filtration plant; water-softening plant and bldg., 10,000,000 gals.; 400-h. p. boiler; two 7,000,000-gals. low-lift centrifugal and 5 smaller pumps, meters, etc.....	Geo. B. Herwick, Chm. Water Com'rs. A. F. Bannon, Jr., City Engineer. P. M. Blake, Newtonville, Mass.
Pennsylvania.....	Bradford.....	April 20.....	Building 4,000,000-gal. reservoir.....	
Connecticut.....	New Britain.....	May 15.....	Building intake at Burlington; cost, \$300,000.....	
Texas.....	Fort Bliss.....	June 3, noon.....	Sinking 12-in. tubular well; installing pump; 150,000-gal. steel tank on 70-ft. trestle, two 40-h. p. boilers.....	Constructing Quartermaster.

Sewerage

Minnesota.....	St. Paul.....	March 28, 2 P.M.	Constructing sewer, etc., Smith Ave.....	R. L. Gorman, Clk. Bd. Pub. Wks.
Wisconsin.....	Madison.....	March 29, 7:30 P.M.	Building sewers, 2 sts., Ingersoll St. Dist.....	O. S. Norman, City Clerk.
Indiana.....	Greenfield.....	March 29.....	Laying 5,700 ft. 8-12-in. tile sewer; cement wall, relay 1,240 ft. 8-in. tile.....	Hancock County Commissioners. Albert Hass, City Engineer.
Michigan.....	Menominee.....	March 29.....	Constructing sewers in Dunlap Ave.....	Wm. A. Maynes, Clk. Bd. Pub. Serv.
Ohio.....	Dayton.....	March 29.....	Constructing sewers in three streets.....	Joseph Bernel, Boro. Queens.
New York.....	New York.....	April 1, 11 A.M.	Constructing sewers in various streets.....	
Kansas.....	Larned.....	April 1.....	Constructing 6,295 ft. 12, 10 and 8-in. pipe sanitary sewers, 20 manholes, 2 flush tanks.....	H. A. Rowland, McPherson, Eng'r.
New Jersey.....	Perth Amboy.....	April 1.....	Building 970 ft. sewer; average cut, 12½ ft.....	Forrest L. Smith, City Engineer.
Staten Island.....	Westerleigh.....	April 1.....	Laying 3,500 ft. sewer mains in streets.....	National Prohibition Park Co.
Pennsylvania.....	McKeesport.....	April 1.....	Two 6-ft. sewers, each 3 miles long.....	T. W. White, City Engineer.
Ohio.....	Toledo.....	April 1.....	Constructing sewer system; cost, \$40,000.....	F. I. Consaul, City Engineer.
Louisiana.....	Crowley.....	April 2, 6 P.M.	Constructing sewer system, inc. 57,460 ft. 8 to 18-in. pipe, 24 flush tanks, 64 manholes and pumping station with electric pumps.....	Shelby Taylor, Mayor.
Connecticut.....	Waterbury.....	April 2, 8 P.M.	Main carrier, sewage disposal works, inc. filter conduits, grit chamber, substructure for controller house and appurtenances.....	R. A. Cairns, City Engineer.
Kentucky.....	Shelbyville.....	April 2, 8 P.M.	Laying 5 miles 6-15-in. sewer, 62 manholes, etc.; concrete septic tank, 8 x 34 x 92 ft.....	C. W. Ballard, Secy. Sewer Com'rs.
Iowa.....	Wave ley.....	April 2.....	Constructing sewers in several streets.....	F. M. Munger, City Clerk.
California.....	Oakland.....	April 3, 11 A.M.	Constructing concrete intercepting sewer.....	W. B. Fawcett, Sec'y B. P. W.
New York.....	Ithaca.....	April 4, 8 P.M.	Building reinforced concrete septic tanks, inc. 1,100 cu. yds. concrete, piping, valves, etc.....	H. L. Stewart, Supt., Sewer Com'rs.
Iowa.....	Des Moines.....	April 5, 11 A.M.	Constructing Grand View sewer system, including 10,449 ft. 10-20-in. sewer.....	W. W. Wise, Bd. Pub. Works.
Massachusetts.....	Boston.....	April 5, 2:30 P.M.	Constructing 2,168 ft. 60-72-in. sewer in rock and earth trench, Section 84, high level sewer.....	W. M. Brown, Ch. Engr., Met. Sewer Works.
Wisconsin.....	Fond du Lac.....	April 6, 2 P.M.	Constructing 21,000 ft. storm sewer.....	L. A. Pettibone, City Engineer.
Wisconsin.....	Oshkosh.....	April 8, noon.....	Constructing sewer in Oregon St.....	W. A. Marden, Pres. B. P. W.
Ohio.....	Ravenna.....	April 9.....	Building 10½ miles 8-18-in. pipe sewer, etc.....	E. W. Marvin, Village Clerk.
Maryland.....	Baltimore.....	April 10, 11 A.M.	Building outfall sewer, Sections, 3 to 10, inc. 23,353 lin. ft. 11 ft. by 12 ft. 3 in. concrete sewer, high level interceptor, 5,200 ft. 8 ft. 4-in concrete sewer; west low level interceptor, 3,605 ft. 74, 76, 80, 84-in. circ. conc. sewer; clearing and grading 120 acres, with excavation embankment and underdrain for Disposal Works.....	E. Clay Timanus, Mayor.
West Virginia.....	Parkersburg.....	April 11, 8 P.M.	Building two-ring brick storm sewer; 6 ft. diameter, 800 ft. long.....	J. V. Dunbar, City Engineer.
District of Columbia.....	Washington.....	April 12, noon.....	Constructing sewers.....	H. B. F. Macfarland, Commissioner.
Saskatchewan.....	Battleford.....	April 15.....	Constructing sewer system.....	R. C. Laurie, City Sec'y-Treas.

Public Buildings

New Jersey.....	Elizabeth.....	March 27.....	Erecting new school, Erie St.....	Board of Education.
Connecticut.....	Norwalk.....	March 28.....	Erecting 3-story 70 x 104 ft. brick high school, also heating, plumbing and wiring.....	Wilson Potter, New York, Arch.
Ohio.....	Nelsonville.....	March 28.....	Erecting school house.....	C. H. Sisson, Pres. Bd. Educ.
Missouri.....	Kansas City.....	March 29, 2 P.M.	Steam heating and ventilating, General Hosp.	Everett Elliott, Sec'y Bd. Pub. Wks.
Connecticut.....	Bridgeport.....	March 30, noon.....	Additions to County jail.....	Whitman S. Mead, Co. Com'r.
Nebraska.....	Fort Robinson.....	March 30, noon.....	Erecting 5 sets officers' quarters; 2 double barracks, 5 stables and other buildings.....	Capt. Leon S. Roudiez, Q. M. Superintendent Porter.
Indiana.....	Valparaiso.....	March 30.....	Building high school, Morgan twp.....	
Ontario.....	Peterborough.....	March 30.....	Erecting Collegiate Institute; also heating, plumbing and wiring; cost, \$61,000.....	W. G. Morrow, Sec'y Bd. Educ.
North Dakota.....	University.....	April 1, 10 A.M.	Library bldg. State Univer'y, cost, \$60,000.....	Patton & Miller, Chicago, Ill., Arch.
New York.....	New York.....	April 1, 11 A.M.	Constructing two school buildings.....	C. B. J. Snyder, Superintendent.
New York.....	New York.....	April 1, 2:30 P.M.	Extension Nurses' Home, Blackwell's Island.....	Robert W. Hebbert, Com'r Charities
Ohio.....	Marion.....	April 1.....	Four-story addition to school; cost, \$10,000.....	Geo. B. Christian, Jr., Clerk Bd. Ed.
A. Kansas.....	Arkadelphia.....	April 1.....	Erecting \$20,000 school house.....	W. A. Crawford, Supt. Schools.
Arkansas.....	Ashdown.....	April 1.....	Erecting Court House; cost, \$10,000 to \$20,000.....	J. L. Lott, Commissioner.
South Carolina.....	Wentworth.....	April 1.....	Erecting County Court House.....	Jas. T. Smith, County Clerk.
Saskatchewan.....	Saskatoon.....	April 1.....	Erecting \$100,000 hospital.....	J. Leslie, Secretary.
Ohio.....	Rock River.....	April 2, noon.....	Constructing school building.....	C. H. Dean, Clerk, Bd. Education.
Louisiana.....	Crowley.....	April 2, noon.....	Erecting 8-room school; cost, \$14,000.....	Shelby Taylor, Mayor.
Iowa.....	New Hampton.....	April 2, 1 P.M.	Erecting a County Home.....	F. N. Lentz, County Auditor.
Kansas.....	Kingman.....	April 2.....	Erecting Court House and jail.....	Bett Walter, County Clerk.
South Dakota.....	Woonsocket.....	April 3.....	Erecting brick and stone Court House; also heating, lighting and plumbing; cost, \$45,000.....	Lewis Strand, County Auditor.
Kansas.....	Kingman.....	April 3.....	Erecting Co. high school building.....	Oren Murphy, Clk. Bd. Educ.
District of Columbia.....	Washington.....	April 3.....	Furnishing plumbing fixtures H. R. Bldg.....	Elliott Woods, Supt. Capitol.
Texas.....	Fort Sam Houston.....	April 4, 11 A.M.	Electrical work in 5 bldgs., etc.....	L. J. Fleming, Q. M.
South Carolina.....	Columbia.....	April 4, noon.....	Interior repairs, reinforcing ceilings; cost, \$12,000.....	State House Commission.
Virginia.....	Surry.....	April 4, 2 P.M.	Erecting County Court House.....	A. S. Edwards, County Clerk.

Public Buildings—Continued

New York.....	New York.....	April 4, 3 P.M.....	Installing steel-tile cases, mezzanine floors, etc., at Custom House.....	Cass Gilbert, Architect.
Georgia.....	Macon.....	April 4, 3 P.M.....	Conduit and wiring Post Office annex.....	J. K. Taylor, Washington, D. C.
Iowa.....	Emmettsburg.....	April 5.....	Erecting jail and sheriff's residence.....	Sim. R. Stedman, County Auditor.
Colorado.....	Denver.....	April 8, 3 P.M.....	Extension, remodeling, etc., U. S. Post Office.	J. K. Taylor, Washington, D. C.
Illinois.....	Carthage.....	April 9, 2 P.M.....	Erect'g new Co. Court House; cost, \$115,000.	J. W. Westfall, Co. Clerk.
New York.....	Little Falls.....	April 9, 3 P.M.....	Constructing U. S. Post Office, complete.....	J. K. Taylor, Washington, D. C.
New York.....	New York.....	April 11, 3 P.M.....	Interior finish, New York Pub. Library.....	Carrere & Hastings, Architects.
North Carolina.....	Asheville.....	April 11.....	Constructing extension to U. S. Post Office.....	J. K. Taylor, Washington, D. C.
District of Columbia.....	Washington.....	April 12, 3 P.M.....	Repairs to east front Treasury bldg.; cost, \$350,000.....	James Knox Taylor, Supervising Arch.
Texas.....	Tyler.....	April 15, 3 P.M.....	Extension to U. S. Post Office and Court House.....	J. K. Taylor, Washington, D. C.
Ohio.....	Columbus.....	April 15.....	Erecting \$60,000 dormitory, State Univ.....	Mills & Haydon, Architects.
New York.....	West Point.....	April 15.....	Tile and marble work, old Cadet barracks.....	Quartermaster.
Michigan.....	Flint.....	April 18, 3 P.M.....	Constructing U. S. Post Office.....	J. W. Westfall, Washington, D. C.
Illinois.....	North Chicago.....	May 1, noon.....	Pldgs. at Naval Training Station.....	Jarvis Hunt, Chicago, Architect.
South Dakota.....	Pierre.....	June 4.....	Constructing Capitol bldg.; cost, \$600,000.....	Bell & Dweiler, Northwestern Bldg. Minneapolis, Minn., Archs.

Bridges

New Jersey.....	Paterson.....	March 27, 2 P.M.....	Constructing steel bridge, Straight St.....	A. B. Hopper, Chm. Freeholders.
Pennsylvania.....	Reading.....	March 28, 10 A.M.....	Reinforced concrete arch bridge, 60-ft. span.....	H. F. Livingood, Co. Comptroller.
Illinois.....	Chicago.....	March 28, 11 A.M.....	Removing old protections, chains and piles, and putting new in place on bridges.....	Wm. L. O'Connell, Com'r Pub. Wks.
Ohio.....	Providence.....	March 28.....	Constructing two bridges.....	J. W. Kerr, Chm. Co. Com'r's, Toledo.
Indiana.....	Huntington.....	March 28.....	Constructing two steel bridges.....	George S. Morris, Co. Auditor.
Louisiana.....	New Orleans.....	March 29, 1 P.M.....	Viaduct over R. R. tracks, Newton St. Algiers	Chas. R. Kennedy, Comptroller.
Illinois.....	Urbana.....	March 29.....	Building 16 x 80 ft. bridge on concrete.....	Ira O. Baker, Champaign, Eng'r.
Manitoba.....	Dauphin.....	March 30.....	Building two 60-ft. span steel bridges on piles, steel joists; 60 ft. wooden bridge.....	J. A. Gorby.
California.....	Fort Rosecrans.....	April 1, 10 A.M.....	Constructing four foot bridges.....	Capt. C. D. V. Hunt, Q. M.
California.....	Salinas.....	April 1, 2 P.M.....	Bridge, 1,004 ft. long, 500 ft. Pratt trusses, Chualar; also one 1,880 ft. long, 1,100 ft. trusses, San Ardo; pile trestle approaches.	Lou G. Hare, County Surveyor.
Indiana.....	Tipton.....	April 1, 2 P.M.....	Extension to bridge, Cicero twp.....	Tipton County Commissioners.
Mississippi.....	Greenwood.....	April 1.....	Building bridge 300 ft. long.....	C. W. Crockett, Chancery Clerk
Indiana.....	Crawfordsville.....	April 2, 10 A.M.....	Constructing 3 steel bridges and concrete arch, and repairing steel bridge.....	James A. Harding, Engineer.
Indiana.....	Covington.....	April 2, noon.....	Building 20-ft. span, three 25-ft. spans; 40-ft. span and 71-ft. span.....	Wm. B. La Baw, Co. Surveyor.
Indiana.....	La Grange.....	April 2, noon.....	Building 4 iron bridges, 80, 60, 44 and 38-ft., all 14 ft. wide, on stone or conc. abutments.	V. D. Weaver, Clk., Co. Com'r's.
South Dakota.....	Yankton.....	April 2.....	Constructing County bridges during year.....	David M. Finnegan, Co. Auditor.
Indiana.....	Indianapolis.....	April 5, 10 A.M.....	New boilers, pumps, heaters, etc., Court House.....	C. J. Clark, Co. Auditor.
South Dakota.....	Mitchell.....	April 5.....	Building 3 steel bridges, each 60 ft. long.....	A. B. Anderson, County Auditor.
California.....	San Bernardino.....	April 6, 11 A.M.....	Building 45-ft. span; concrete piers.....	Chas. Post, County Clerk.
Ohio.....	Cleveland.....	April 6, 11 A.M.....	Constructing bridge, Report No. 1482.....	A. B. Lea, County Engineer.
Indiana.....	South Bend.....	April 8, 11 A.M.....	Melan arch bridge of three 80-ft. spans; also re-erecting steel bridge, 2 spans, 126 ft. on new concrete substructure.....	A. J. Hammond, Engineer.
Kentucky.....	Louisville.....	April 8, noon.....	Steel or wrought-iron trestles, etc., for Boule dam.....	Capt. H. Burgess, Eng'r Corps, U. S. A.
Ohio.....	Salem.....	April 8.....	Constructing substructure of bridge.....	G. A. Sheets, Co. Auditor, Lisbon.
Minnesota.....	Duluth.....	April 9.....	Building 120-ft. steel span; 18-ft. approaches.	O. Halden, County Auditor.
Indiana.....	Port Wayne.....	April 10, 10 A.M.....	Building steel bridge; 2 spans, 170 ft. each; also 2 abutments and pier and concrete and creosoted floor, Maumee twp.....	Auditor, Allen County.
Ohio.....	Granville.....	April 11.....	Building 25 ft. span, concrete steel span.....	H. L. Maddocks, County Engineer.
Ohio.....	Cincinnati.....	April 12, noon.....	Reinforced box culvert, Sycamore twp.....	Fred. Drehs, Co. Com'r's.
Ohio.....	Cleveland.....	April 13, 11 A.M.....	Building 2 steel concrete bridges.....	A. B. Lea, County Surveyor.
Colorado.....	Denver.....	April 15, 11 A.M.....	Building reinforced concrete highway bridge.....	C. E. Randolph, Pres. B. P. W.
Montana.....	Glendive.....	April 25, 2 P.M.....	Constructing 16 steel and 20 combination wood and steel highway bridges.....	H. N. Savage, Huntley, Superv. Eng.
Louisiana.....	New Orleans.....	April 20, 1 P.M.....	Constructing viaduct in Algiers.....	Charles R. Kennedy, Comptroller.
Washington.....	Seattle.....	April 30, 3 P.M.....	Installing conduit and wiring system, U. S. P. O.....	J. K. Taylor, Washington, D. C.

Miscellaneous

New York.....	New York.....	March 28, 11 A.M.....	Installing electric-light plant for bldgs. on Blackwell's Island.....	John V. Coggey, Com'r Charities.
New York.....	New York.....	March 28, 3 P.M.....	Furnishing supplies for playgrounds.....	Moses Herrman, Pres. Park Bd.
Georgia.....	Atlanta.....	March 28.....	Excavating site new Federal Building.....	Ambrose B. Stannard, N. Y. City
Wisconsin.....	Milwaukee.....	March 29, 10:30 A.M.....	Constructing concrete tunnel under Kinnickinnic River for Water Department.....	C. J. Poetsch, Chm. B. P. W.
Iowa.....	Des Moines.....	March 30, 9 A.M.....	Electrical and engineer's supplies, fire hose, lumber, brick, cement, sewer and drain pipe for year, beginning April 1.....	Geo. F. Poorman, City Clerk.
New Hampshire.....	Portsmouth.....	March 30.....	1,000 kw. generating set, etc.; cost, \$45,000.....	H. H. Rousseau, Navy Dept., Washington, D. C.
Pennsylvania.....	Chester.....	April 1, 10 A.M.....	Lighting City Hall, etc., for one year.....	James R. Bagshaw, Chm. Light Com.
Manitoba.....	Winnipeg.....	April 1.....	Constructing power plant; cost, \$3,500,000.....	Cecil Smith, Engineer.
New York.....	New York.....	April 2, 10:30 A.M.....	Furnishing iron, steel, etc., for use repair shops, Fire Department.....	Francis J. Lantry, Commissioner.
Ontario.....	Windsor.....	April 2, noon.....	Supplying 12,000 tons broken stone.....	Stephen Lusted, City Clerk.
New York.....	New Brighton, S. I.....	April 2, noon.....	Sprinkling parts of various highways.....	George Cromwell, Boro. Pres.
New York.....	New York.....	April 2, noon.....	Furnishing iron and steel, pipe and fillings, castings, and miscellaneous supplies.....	M. Craven, Com'r Street Cleaning.
Ohio.....	Elmore.....	April 2.....	Lighting sts. 3 yrs.; gasoline or natural gas.....	Ernest Jaeger, Village Clerk.
West Virginia.....	Wheeling.....	April 3, 11 A.M.....	Furnishing 9,500 bbls. Portland cement.....	Capt. F. C. Boggs, U. S. Engrs.
Massachusetts.....	Boston.....	April 4, noon.....	Constructing Section 6, Washington St. tun'l.	B. Leighton Beal, Sec'y Transit Com.
Michigan.....	Muskegon.....	April 4, 3 P.M.....	Repairing South pier.....	Col. M. B. Adams, Grand Rapids.
Indiana.....	Indianapolis.....	April 5, 10 A.M.....	New boilers, pumps, heater, etc., power house	Marion County Commissioners
California.....	Los Angeles.....	April 8.....	Franchise to build, and operate for 40 yrs., electric r.r. on portions of 5 streets.....	C. G. Keyes, Clerk Bd. Supervisors.
Virginia.....	Clifton Forge.....	April 18.....	Purchase of a franchise for lighting village streets by electricity.....	F. A. Smead, Pres. Council.
Manitoba.....	Brandon.....	April 11, noon.....	Supplying 6,000 to 8,000 bbls. Port. cement.	W. H. Shillinglaw, City Engr.
New York.....	New York.....	April 11, noon.....	Constructing Route No. 9, rapid transit railway; tunnel, iron or steel and masonry; min. ht. 13 ft.; max. width of each track 15 ft.; 4 tracks Centre St.; 2 in Walker and Canal.....	Rapid Transit Commissioners.
Colorado.....	Montrose.....	April 15, 3 P.M.....	Furnishing 30,000 bbls. Portland cement.....	J. R. Gafield, Washington, D. C.
Missouri.....	Chillicothe.....	April 15.....	Constructing electric plant; cost, \$100,000.....	Burns & McDonnell, Kansas City, Engrs.
Kentucky.....	Bowling Green.....	April 15.....	Bldg. \$60,000 plant, Green River Hydro. Elec. Co.....	H. von Schon, Consult. Eng'r
Virginia.....	Clifton Forge.....	April 18, 8:30 P.M.....	Constructing electric lighting system.....	John A. Bowers, Mayor.
District of Columbia.....	Washington.....	April 22, 2 P.M.....	Furnishing electrical supplies, paints, hardware, etc., for District, year begin. July 1	H. B. F. Macfarland, Commissioner.
New York.....	Schenectady.....	April 24, 2 P.M.....	Disposal of ashes, rubbish, garbage and dead animals by incineration or other process.....	L. B. Sebring, City Engineer.
Mississippi.....	Natchez.....	May 1, 4 P.M.....	Lighting city for 10 yrs from March 1, 1900.....	A. C. Berton, Chm. Light Com.
Iowa.....	Des Moines.....	May 2, 11 A.M.....	Improving channels, Raccoon and Des Moines Rivers.....	W. W. Wise, Bd. Pub. Works.

STREET IMPROVEMENTS

San Diego, Cal.—The matter of issuing \$75,000 boulevard bonds is under consideration.

Columbus, Ga.—Council has adopted the report of the Street Committee which provides for laying 45,589 square yards of paving during the season; bitulithic or vitrified brick will be used.

Cairo, Ill.—The local board is arranging to pave certain streets.

Champaign, Ill.—The residents have voted for paving West streets.

Joliet, Ill.—Plans have been made for paving Campbell street with asphalt at an estimated cost of \$18,824.

Ottawa, Ill.—Mayor Charles E. Hook has approved ordinance for improving eleven streets by grading, draining, curbing and paving estimates being as follows: Excavating 18,500 cubic yards, inclusive of all necessary filling, \$7,320; furnishing and placing 8,080 cubic yards of gravel in foundation, \$8,080; furnishing and placing 2,284 cubic yards of sand in cushion, \$1,713; furnishing and laying 41,660 square yards of vitrified brick in pavement with cement filler, \$47,629.60; furnishing and placing 30½ tons of asphaltic filler in expansion joints, \$9.15; rolling subgrade, gravel and brick, \$1,400; furnishing materials and constructing 10,430 square feet of cement concrete walks, \$2,086; furnishing materials and constructing 27,065 lineal feet combined curb and gutter of cement concrete, \$16,239; furnishing materials and constructing 54 lineal feet of protection curb of cement concrete, \$21.60; furnishing materials and constructing 1,287 lineal feet of crossing curbs of cement concrete, \$257.40; furnishing and placing 117 crossing plate of cast iron, \$351; adjusting sewer inlets and manholes to conform to lines and grades of this improvement, \$200; total estimated cost, \$91,385.35.—Charles F. Wilson, Engineer Board of Local Departments.

Rock Island, Ill.—An ordinance has passed Council for the improvement of Seventh street, between Thirtieth and Thirty-eighth streets, with asphalt paving.

Elkhart, Ind.—Council is considering the material to be used in paving certain streets to be improved this year.

Evansville, Ind.—The Board of Public Works is taking steps toward making street improvements; Lincoln avenue from Canal to Kentucky avenue will be paved, and all alleys between Clark and Second streets will also be paved; a number of other streets are included in the list to be improved.

Evansville, Ind.—Arrangements are being made to make various improvements and extensions in the Kentucky avenue sewer.

Goshen, Ind.—Residents have petitioned for brick paving.

Huntington, Ind.—Council is preparing to pave several streets.

Marion, Ind.—L. C. Lillard is circulating a petition among property owners for paving with brick South Gallatin street.

Peru, Ind.—Plans are being prepared by Engineer Horan for paving all streets from Eighth to Canal.

New Albany, Ind.—Property owners on Thomas street have asked to have that thoroughfare macadamized.

Terre Haute, Ind.—The Board of Public Works will probably authorize the paving of Maple street with macadam.

Covington, Ky.—Council has ordered the reconstruction of a number of streets and the building of half a dozen sewers. The Home Construction Company has the contract for furnishing the city with a large amount of crushed stone.

Newport, Ky.—The Improvement Committee has recommended the paving of about fifteen of the principal unpaved streets of this town with brick, and City Engineer Morledge has been instructed to prepare estimates for a number of other streets.

Menominee, Mich.—Ogden avenue is to be paved with brick and a sewer is to be constructed on Dunlap avenue.

Springwells, Mich.—The Michigan Legislature has passed an act authorizing the village of Springwells, a suburb of Detroit, to issue \$60,000 bonds, to be used for paving streets.

Aurora, Minn.—Council is offering for sale \$15,000 in bonds for improving roads.

Minneapolis, Minn.—Resolution passed by Council authorizing issue of \$300,000 bonds for defraying the city's portion of expense of improving streets and avenues has been approved.—J. C. Haynes, Mayor.

Jackson, Miss.—The City Government will expend \$7,000 paving certain streets with brick.

Joplin, Mo.—Concrete sidewalks are to be constructed in a number of streets.—C. W. Lyon, Mayor.

Milton, N. H.—The Town has appropriated over \$2,500 for the repair of highways and bridges.—Harry L. Avery, Town Clerk.

Rochester, N. Y.—Council has designated

Clearfield brick block as the material for paving Friederich Park, which will cost \$1,100 more than another material offered; final ordinances were adopted for Earl street sewer, Dartmouth street cement walks and Field street opening; the Richard and Rutgers streets extension ordinance and the Gladys street, Woodford street and Guyer street pavement were put over; first ordinances passed include Lake avenue pavement, from Driving Park avenue to the city line, bitulithic being specified, at an estimated cost of \$90,000; Weeger street pavement, \$14,000; Dewey avenue pavement, \$45,000; Maplewood avenue grading and walks.—City Clerk Clements.

Schenectady, N. Y.—Ordinances have been introduced in Council for the paving of Broadway with asphalt and brick and Raymond street with asphalt.—L. B. Sebring, City Engineer.

Fargo, N. D.—The City Engineer has been instructed to prepare plans, specifications and estimates for paving Front street with cedar block pavement on a concrete base.—Mayor Johnson.

Athens, O.—Ordinances have passed Council declaring it necessary to pave Palmer and High streets with brick or block stone.

Batavia, O.—The vote at special election to increase appropriation for cement sidewalks was overwhelmingly in favor of proposition.

Canal Winchester, O.—Council has passed the paving ordinance and is soon to take up the question of a large number of cement sidewalks.

Cleveland, O.—The citizens have voted \$1,000,000 bonds for street improvements.

Elyria, O.—Legislation introduced into the Council to pave with brick Kaiser court, West Third street, Park street, to macadamize Winkles, Gaylor and Olive streets.

Findlay, O.—Resolutions adopted to pave Jefferson street with brick or stone; Clinton court with brick; asphalt is to be used in the improvement of Hurd avenue; bids invited; the proposition to macadamize E. Main street will be taken up with the County Commissioners.

Fostoria, O.—Resolutions adopted to pave eight sidewalks.

Garrettsville, O.—Bids for improving one and three-fourths mile of roadway on the County Infirmary road were rejected because all were above estimated cost; the County Commissioners will at once make a new estimate and readvertise; F. E. Meyers of Canton was awarded the contract for furnishing specifications for paving Franklin avenue.

Lima, O.—E. A. Freshwater & Son of Chester, W. Va., are the low bidders for paving Main and Pine streets.

Mansfield, O.—The Council will spend about \$35,000 to pave and improve streets.

Marietta, O.—County Auditor J. M. Williams has been authorized by County Commissioners to advertise for bids for paving Newport pike for a distance of half a mile; the Auditor is also authorized to advertise for bids for a bridge at Rainbow Creek, consisting of stone abutments, iron bridge and concrete floor, also for a bridge on the Straight road; also for a bridge in Warren township.

Massillon, O.—East Smith street will be paved with brick.

Marysville, O.—J. M. Kemp & Sons of Middletown are the low bidders on the paving at Milford Centre.—City Engineer J. C. Kennedy.

Middletown, O.—The Council has adopted resolutions for sidewalks, curbs and gutters on six streets; the Engineer has submitted plans for improving E. Third street with vitrified brick.

Mt. Gilead, O.—W. H. Raymond of Galion has been awarded the contract for paving N. Main street.

St. Clairsville, O.—Council is preparing to let paving contracts to the amount of \$22,000; Councilmanic committee is visiting nearby towns inspecting pavement prior to deciding on the material.

Springfield, O.—Plans and specifications are being prepared for paving certain portions of Fisher street.—W. H. Sieverling, City Engineer.

Toledo, O.—Ordinance passed to widen Summit street at a cost of \$25,000; Public Improvement Committee recommends to Council that Jefferson street be sheeted with asphalt.

Warren, O.—Resolution adopted declaring it necessary to grade, drain and pave N. Mahoning avenue, and approving plans and specifications therefor.

Washington C. H., O.—The Commissioners will receive bids soon for repairs on the Court street bridge with kerdone block.

Wooster, O.—Resolution has been adopted by Council to pave three streets.

Xenia, O.—City Engineer has been instructed to prepare plans and specifications for paving Galloway, King, Whitman and Collier streets.

Eugene, Ore.—Council has decided to pave several streets.

Pendleton, Ore.—The property owners have petitioned for paving certain portions of Main street, according to plans and specifications.

Anderson, S. C.—The city has voted \$75,000 street improvement bonds, for the following work: 6,000 square yards, brick paving; 5,600 lineal feet, curb stone; 175,000 square feet, sidewalk paving, and a quantity of drains.—P. K. McCully, Mayor; W. H. Shearer, City Engineer.

Camden, Tenn.—The matter of issuing \$50,000 bonds for County road work will be submitted to a vote of the people.

Chattanooga, Tenn.—The citizens have voted \$1,000,000 bonds for streets, sewers and floating indebtedness.

Nashville, Tenn.—The proposition to pave several streets with asphalt is under consideration of Council.

Ripley, Tenn.—Bonds, \$10,000, were voted, March 14, for graveling streets.

Tyler, Tex.—The city contemplates the paving of a number of streets in the near future.—Jno. H. Bonner, Mayor.

Wise, Va.—Wise county will issue \$300,000 road bonds and bids will be received shortly.—Address County Judge.

Wheeling, W. Va.—City Engineer Cooke is making preliminary plans for the paving of Hopmill road to cost \$36,000; retaining walls are to be built.

Lacrosse, Wis.—An election will be held to decide the question of issuing \$15,000 bonds for improving certain streets.

Oshkosh, Wis.—Council has adopted a resolution providing for the following street work: Paving Saratoga avenue from Jackson to Huron street, with tar macadam; cost, \$2,709; paving Market street between High and Algoma streets and Division street between High and Algoma streets with creosote block; cost, \$4,658.55; paving High street between Market street and Light street with creosote block; cost, \$9,837.75; paving Oregon street from Fox River to Fifteenth street with brick; cost, \$38,444.

SEWERAGE

Hegewisch, Ill.—Plans are being prepared for constructing sewers at a cost of \$100,000.

Evansville, Ind.—Plan No. 3 prepared by the City Engineer for the construction of a sewer from Bee slough through Cass, Garoni, Monroe, Kentucky and Bell avenues has been approved by the Board of Public Works and bids will soon be advertised for; the sewer will be 6½x8½ feet diminishing to 4x5 at the source, and the cost is estimated at \$176,000.

Mooreville, Ind.—The Town Board has directed plans made for the construction of five miles of 4, 10 and 12-inch sewers; estimated cost, \$17,000.

Peru, Ind.—Council has ordered plans and specifications for the construction of a sewer between Main and Third streets from Water to Benton street.

Richmond, Ind.—Plans have been completed for a sewer system in West Richmond; the trunk sewer will be 2,500 feet in length with six lateral sewers; the trunk sewer will be made of concrete piping and the laterals of vitrified tile pipes; estimated cost \$50,000; bids will be invited soon.—Charles and Davis, City Engineers.

Burlington, Ia.—Bids are invited for constructing the Locust street sewer and branches.

Latonia, Ky.—Council is considering the proposition of building a system of trunk sewers; Engineer Wm. Stewart is to make a preliminary estimate of the cost and a bond issue will be recommended.

Covington, La.—Surveys are being made for the establishment of a sewerage system.

St. Louis, Mo.—The Municipal Assembly has authorized the construction of a number of sewers.—A. J. O'Reilly, President, Board of Local Improvements.

Binghamton, N. Y.—Storm water sewers will be constructed in several streets.—S. M. Baird, City Engineer.

Rochester, N. Y.—Estimates are being made to ascertain the cost of carrying the sewage of the city in a large conduit, to be placed in the east side of the river, to cost about \$1,194,300.

Waterbury, N. Y.—Plans are being prepared by John L. Collins, C. E., 424 Broadway, Albany, N. Y., for constructing six miles of sewers.

Shelby, N. C.—The city has voted to issue \$115,000 in bonds for water and sewerage purposes.

Ashtabula, O.—Resolution adopted by Council declaring it necessary to construct sewer in Fairfield avenue.

Chapin Falls, O.—The citizens have voted \$18,000 bonds for construction of sewers.

Cincinnati, O.—Resolutions to construct sewer in Stiner avenue, estimated cost \$11,000, is being considered by Council.

Collinwood, O.—Chas. J. Moses, Clerk of

Village, will receive bids for labor and material for the construction of sanitary sewer in Moran street and Crosby avenue.

Fostoria, O.—Council will employ consulting engineers for the construction of sewers in certain streets; also as to certain water works improvements; negotiations with Riggs and Sherman are in progress.

Lebanon, O.—Resolution was adopted to issue bonds to construct sewer in Silver street, Broadway, Pleasant street and Mechanic street.

Lorain, O.—Ordinance passed to construct sewer in Linden street.

Massillon, O.—Engineer Howald has submitted estimates for storm water sewers for Wooster, East, North and Young streets; these estimates are the last of a group of what are known as the large improvements, including paving, guttering and the building of sewers.

Niles, O.—William Wilson, C. E., has been authorized to prepare plans for constructing a sewage disposal plant.

Oxford, O.—The plans of Alex. Potter of New York city for the new sewerage system for this town have been accepted by the Council; the resolution to construct system has passed Council.—D. P. Beaton, Village Clerk.

Wauseon, O.—Council has adopted resolution notifying property owners along Fulton street to make necessary sewer connections before brick and concrete pavement is laid; legislation has been introduced to pave Depot and Commercial streets.

Youngstown, O.—Resolution has been adopted by Council declaring it necessary to issue \$30,000 bonds to construct sewage disposal works, purchase site therefor, and to construct a sewer therefrom.

Lawton, Okla.—Bonds, \$200,000, have been voted to establish water plant and sewer system.

Glassport, Pa.—Council has authorized construction of a 4-foot, two ring brick sewer in Ninth street; 24-inch, 18-inch and 12-inch terra cotta sewer in Indiana avenue; bids are invited by the Sewer Committee.—Patrick F. Kelley, Burgess.

Pittsburg, Pa.—Arrangements are being made to reconstruct the sewerage system at a cost of about \$20,000,000.

Knoxville, Tenn.—The City Engineer is preparing specifications for a system of sewers to be constructed in Jackson avenue.

Wheeling, W. Va.—Sewer five feet diameter, 1,200 feet long, is to be constructed in Parkview; estimates are being prepared.

WATER SUPPLY

Selma, Fla.—The matter of establishing a municipal water plant is under consideration.

Platt City, Fla.—Bids will be received, April 1, for the purchase of \$25,000 6 per cent. water bonds.—G. B. Wells, Mayor.

Atlanta, Ga.—An election will be held, April 9, to decide the question of issuing \$500,000 bonds of the City of Atlanta for waterworks improvements.

Commerce, Ga.—A preliminary survey is now being made, with a view to establishing a complete system of waterworks; bonds will be issued for the installation of the plant.

Madison, Ga.—The town has voted to issue bonds for waterworks.

Cary, Ill.—The matter of issuing bonds for water supply will be submitted to a vote of the people.

Good Hope, Ill.—The citizens have voted \$8,000 in bonds to secure water supply for fire protection.

Heyworth, Ill.—The question of issuing bonds for waterworks will be submitted to a vote of the people.

Peoria, Ill.—The Peoria Waterworks Company proposes to extend water mains, in outlying districts.

New Castle, Ind.—Numerous additions and extensions to the Municipal Water and Electric Light Plant are necessary; estimated cost \$20,000.

Ponca, Kans.—At the coming election, the citizens will vote on issuing \$12,000 water bonds and \$20,000 sewer bonds.

Alexandria, La.—The citizens have voted \$25,000 bonds for water and sewer purposes and \$30,000 bonds for City Hall.

Winfield, La.—Bids will be received, April 2, for the purchase of \$27,000 5 per cent. waterworks bonds.

Bangor, Me.—Water mains will be extended during the year at a cost of \$25,000.

Bovey, Minn.—An election is to be held to decide the question of issuing \$7,000 in bonds for erecting a water tower.

Henderson, Minn.—The city will build a \$10,000 waterworks.

Minneapolis, Minn.—Council has directed that a 6-inch water main be laid in Irving avenue and a 12-inch main in W. Lake street at a depth of 8 feet, with hydrants, gates and connections.—J. C. Haynes, Mayor.

Carthage, Mo.—At the special election, March 12, the proposition to issue \$120,000 bonds for a municipal water plant was car-

ried by a vote of about five to one.—J. P. Leggett, Mayor.

Hooksett, N. H.—At the town meeting it was voted to put in thirty hydrants at \$30 each.—John W. K. Rowell, Selectman.

Shelby, N. C.—Bonds, \$35,000, have been voted for constructing an up-to-date waterworks system in the near future.

Larimore, N. D.—At a special meeting of the Council, April 1, a vote on the question of issuing \$25,000 in bonds for waterworks improvement purposes will be taken.

Ashtabula, O.—The Walter P. Rice Company of Cleveland have been awarded contract for the waterworks system; a plant to suit a city of 30,000 inhabitants will be designed.

Elyria, O.—Ordinance passed to issue \$25,000 bonds to enlarge and improve the waterworks system; ordinance adopted to issue bonds in the sum of \$20,000 for the purpose of constructing pavements; ordinance passed declaring it necessary to construct certain storm water sewers; ordinance passed to pave Third street; ordinance passed to pave Park street.

Garrettsville, O.—Ordinances were passed by Council to issue \$3,500 bonds to complete the construction of waterworks system.

Sandusky, O.—Council has instructed the chief engineer to procure engineers to design a 6,000,000-gallon filtration plant.—A. C. Schults, City Engineer.

Zanesville, O.—Engineer John P. Force will soon commence work of plans for the waterworks system; he proposes a system of 22 8-inch wells, pumped by direct suction; he also suggests that the waterworks distributing system should be improved at a cost of \$65,000.

Peoria, Okla.—At the Spring election the question of issuing \$35,000 water bonds will be submitted to a vote of the people.

Falls City, Ore.—Bids will be received for the purchase of \$8,000 bonds for waterworks purposes; interest 5 per cent., payable after ten years; the town has no indebtedness.—A. Lucas, Mayor.

LaGrande, Ore.—The city has voted \$100,000 additional water bonds.

Marlin, Texas.—Bids will be received, April 3, for the purchase of \$16,000 40-year waterworks extension bonds.—I. J. Peterson, Mayor.

Swanton, Vt.—The citizens have voted to bring water from Fairfield Pond, provided a proper system, complete, can be installed for \$75,000; estimates and bids are invited.—C. E. Allen, Village President.

Medical Lake, Wash.—The City Clerk has been directed to advertise for bids for the extension of the waterworks.

Manitowoc, Wis.—The citizens have voted to build a new water plant and are trying to purchase the present private plant.

LIGHTING AND ELECTRICITY

England, Ark.—Council is still considering the granting of an electric-light franchise either to Mr. Edwards of Little Rock or W. T. Tyler.

Eureka, Cal.—The North Mountain Power Company is preparing to build a plant at Junction City to furnish light and power to Eureka and neighboring towns; it is proposed to buy in a plant of 10,000 horsepower capacity.—H. L. Kackman, President.

Irving, Ill.—The Hillsboro Electric Light and Power Company has made a proposition to furnish the village with electric light and power.

Davenport, Ia.—Bachr & Von Maur, engineers, from St. Louis, will have charge of the work and will draw plans for the plant for the Independent Light and Power Company; as soon as this is completed the contract for the work will be awarded and the construction will be pushed as rapidly as possible.

Laurel, Md.—Council has under consideration the establishment of a municipal lighting plant.

Crystal Falls, Mich.—It is proposed to expend \$20,000 improving the municipal electric-lighting plant; a new power house, pump and dynamo are required.

Detroit, Mich.—The Public Lighting Committee has petitioned for an appropriation of \$250,000; among the big new items approved were the amounts asked for a new turbo-unit for 400 new alternating lamps to replace an entire circuit of antiquated Brush lamps for putting the remaining overhead wires underground in a half mile circle down Jefferson avenue to Field avenue, automatic stokers, and 200 new arcs; the underground system will also be extended out both Grand River and Michigan avenues.

Memphis, Mich.—The matter of establishing a municipal lighting plant is under consideration.

Fergus Falls, Minn.—The proposition to issue \$24,000 bonds for an electric plant is under consideration.

Schenectady, N. Y.—The lighting contract has been reconsidered and authorization given to enter into a contract with the Schenectady Illuminating Company at the rate already fixed by the city.

Cleveland, O.—A gas and electric-light company is preparing to expend \$8,000,000 in furnishing gas to consumers in Cleveland; it is proposed to build a pipe system.

McComb, O.—Ordinance passed to issue bonds in the sum of \$2,790 to equip electric light works with two new boilers.

Magnolia, O.—A bond issue to erect, equip and maintain a lighting and waterworks plant will be voted on.

Prineville, Ore.—Bids will be received in May or June for constructing a plant for the Pringle Falls Electric Power and Water Company to cost \$200,000.—W. H. Huston, Engineer; L. B. Lafalett, Secretary.

Bristol, Va.—An ordinance to issue \$300,000 bonds for waterworks is being considered.

FIRE EQUIPMENT

Birmingham, Ala.—Two service trucks to carry 50-foot ladders and miscellaneous articles are required by the Fire Department.—A. V. Bennett, Chief.

Red Bluff, Cal.—The Board of Town Trustees have voted to purchase gasoline fire engine for Engine Company No. 2.

Marysville, Cal.—A new volunteer Fire Department has been organized in Hammondton, the new dredge mining town on the Yuba River east of the city of Marysville.

Bridgeport, Conn.—The Board of Fire Commissioners has been compelled to reject fourteen bids for the construction of No. 10 engine house on Maplewood avenue, the lowest being \$10,250, while but \$6,500 has been appropriated; the building is to be a two-story frame structure, 21x70 feet; the plans will be altered by Architect Howe.

Mullen, Idaho.—The Fire Trustees propose to establish fire alarm system.

Joliet, Ill.—The Eureka Hose Company has been awarded a contract for supplying 2,000 feet of hose at 95 cents per foot.

Peoria, Ill.—The Fire Board has petitioned for additional fire hose.

Rockford, Ill.—The Fire Commissioners have decided to purchase a fire net.

Chariton, Ia.—The Fire Commissioners have decided to purchase fire wagon and hose.

Clinton, Ia.—Council has made provision for the erection of a new fire station in the coming summer; also to purchase a new aerial truck for the central station, to cost between \$3,000 and \$4,000.

Davenport, Ia.—The Council Fire Department Committee has called for plans and specifications for a new hose house to be erected on Rockingham road; it is to be a two-story brick building, estimated to cost \$8,000.

New Bedford, Mass.—Council has petitioned for the purchase of 200,000 feet of hose and other equipment.

Kalamazoo, Mich.—The proposed East Side fire station will be erected at the northwest corner of Eberwood and Charlotte avenue.—J. J. Knight, Police and Fire Commissioner.

Columbus, Miss.—Council has purchased a combined chemical engine and hose wagon for \$1,900; six box stations will be erected within the fire limits, and a new electrically equipped bell, costing \$500, will be ordered for the central fire station.

Jamestown, N. D.—The fire company has decided to purchase 1,000 feet of hose.

Cleveland, O.—Bids will be received by the County Clerk of Rockport for the purchase of 2,500 feet of 2½-inch rubber hose, with Cleveland Standard couplings, same to be in 50 set sections.—W. L. Nichols, Clerk, West Park.

Portland, Ore.—The water mains are inadequate to provide ample fire protection, specially to the warehouse districts.

Providence, R. I.—The Fire Commissioners have petitioned for an automobile for the Fire Chief.

Columbia, S. C.—The Garren Electric Company has contract at \$4,692.25 for putting underground the municipal fire alarm and police telegraph wires.

Leesville, S. C.—Council proposes to purchase duplex fire pump.

Tyler, Tex.—The city will expend \$2,500 or \$3,000 in improvements and additions to its Fire Department.—John H. Bonner, Mayor.

Boyd, Wis.—The Fire Department has under consideration the proposition of installing a fire alarm system.

Laramie, Wyo.—The Fire Chief has petitioned for the purchase of a fire engine.

PUBLIC BUILDINGS

Evanston, Ill.—Council has passed an ordinance providing an issue of \$40,000 bonds for library purposes.

Monmouth, Ill.—The citizens have voted \$36,000 bonds for school purposes.

Jefferson, Ind.—The County Commissioners have authorized an issue of \$25,000 bonds for building an asylum.

Stafford, Kan.—The citizens have voted bonds for school purposes.

Franklin, La.—The citizens have voted a special tax of \$50,000 for the erection of a new High School.—Dr. Foster, Parish Superintendent of St. Mary.

White Cloud, Mich.—In the coming spring an election will be held to vote on the question of issuing \$8,000 bonds for a Town Hall.

Gulf Port, Miss.—Bonds, \$18,000, have been voted for school purposes.

St. Louis, Mo.—The Municipal Assembly has appropriated \$45,000 for constructing two free public bath houses.—A. J. O'Reilly, President, Board of Public Improvements.

Norfolk, Neb.—Bonds, \$24,000, have been voted for the erection of high school.

Troy, N. H.—A special appropriation, \$1,800, and \$1,275 for schools has been made in addition to general appropriations, aggregating \$6,000.—M. S. Stone, Town Clerk.

Schenectady, N. Y.—Bids will be received, April 1, noon, for \$18,000, 5 per cent. bonds, for erecting new school in District No. 12.—A. T. Blessing, Attorney for District.

Shelby, N. C.—A special election will be held to vote on the proposition of \$35,000 bonds for the erection of a new school and \$115,000 for the improvement of the water system.

New Bern, N. C.—Bonds, \$30,000, have been voted for additional school facilities; a new building will be erected and \$10,000 will be expended in enlarging the capacity of four graded school buildings.

Valley City, N. D.—A special election will be held, April 6, to decide the question of issuing \$18,000 bonds for the erection of a school house.

Lima, O.—The School Board has decided to issue \$20,000 bonds for the erection of a school house.

Portland, Ore.—Several new schools and additions will be erected during the next year.—Mayor Lane.

Florence, S. C.—Bids will be received, March 26, for the purchase of \$35,000 5 per cent. 20-year school bonds.

Aberdeen, S. D.—The citizens will vote, next month, on issue of \$40,000 school bonds, \$12,000 of which will be used to build a new school on the West Side.—Address School Board.

Bolivar, Tex.—The Attorney-General has approved an issue of \$50,000 4 per cent. bonds for Court House.

Brenham, Tex.—An election will be held to decide the question of issuing \$30,000 school bonds.

Walla Walla, Wash.—A special election will be held to decide the question of issuing \$100,000 bonds for the erection of a City Hall and fire station.

Tyler, Tex.—The School Board has purchased a site in Ward 3, on which will be erected a \$12,000 building; the Hubbard school will be remodeled and converted into a first-class high school.

La Crosse, Wis.—An election will be held to decide the question of issuing bonds for building an armory.—Joseph M. Seiger, City Clerk.

San Juan, Porto Rico.—The Legislature has passed a bill appropriating \$150,000 for the erection of a Capitol Building; it will be built near the site selected for the proposed Federal Building and architects in the United States will be asked to submit plans in competition for a prize which will be awarded the successful competitor.

STREET RAILWAYS

Little Rock, Ark.—At a mass meeting of business interests the plan to raise funds to help finance the Little Rock & Hot Springs Electric railway was discussed and as a result \$31,000 was subscribed.

San Bernardino, Cal.—The San Bernardino Valley Traction Company has issued \$1,000,000 bonds for making extensions.—A. C. Benman, President.

Bridgeport, Conn.—A company is being organized by William H. Merigold, John T. King, and others, for building an electric line from this city to Danbury.

Augusta, Ga.—The Augusta Street Railway Company has applied to the city for permission to lay tracks for an extension of lines.

Whitehall, Ill.—The Prairie State Traction Company was organized at Whitehall to construct an electric line connecting the following towns: Scottsville, Virden and Girard, Whitehall, Roodhouse and Athensville.—A. P. Brought, Manchester; E. S. Greenleaf, Jacksonville, and others, incorporators.

Columbia City, Ind.—The city will vote \$30,000 to the Warsaw-Fort Wayne electric line; subsidies will be asked at Pierceton, \$12,000; Larwis, \$10,000; Corse, \$12,000, and Arcola, \$9,000; it is said that all will be voted with little opposition.

Evansville, Ind.—Preparations are being made for the erection of a new station by the Evansville & Southern Indiana Traction Company.

Ft. Wayne, Ind.—The Winonan Traction

Company surveyors have been working on the line from Ft. Wayne to Arcola and both routes, one immediately paralleling the Pennsylvania tracks and one a little farther north along the Yellow River road, have been gone over by the surveyors.

Pittsburg, Kan.—A local company has been organized to build an electric railway from Girard east to Mulberry through the coal camps, under the name of the Girard Electric Coal Belt Railway Company.—James McFarland, President; J. A. Wayland, Vice-President; H. Phillips, Secretary.

Topeka, Kan.—The Topeka & Southwestern Railway proposes to extend its line to connect with the Missouri Pacific a distance of 53 miles; a steel bridge is to be constructed at Jefferson street at a cost of \$90,000.

Elizabethtown, Ky.—The Kentucky Central Railroad Traction Company has completed the survey of the proposed electric line from West Point to this city, a distance of 22 miles; the road will be completed by the close of the year.

Henderson, Ky.—The Henderson Traction Company has been incorporated with a capital stock of \$150,000, by Walter Schmidt of Cincinnati, J. W. Garrison and others.

Hindman, Ky.—A stock company is being organized to establish an electric line to connect Hindman with the railway, a distance of forty miles.

St. Paul, Minn.—The residents of Lake Minnetonka have petitioned the Twin City Rapids Transit Company to build their lines to the lake.

Natchez, Miss.—The Southern Light and Traction Company has been authorized to extend its line over the National Cemetery road about one mile.

Princeton, Mo.—Clinton H. Balleu has been granted franchise to operate an electric railway.

Gloversville, N. Y.—The Eastern New York Railway Company is preparing to extend its lines to Broadalbin, Gloversville and Johnstown.—Dr. H. C. Finch, Broadalbin, is President.

Barberton, O.—S. N. Brenneman is President of the new Orville, Boylston and Barberton Railway; this road is to have gasoline motors as its power, and will run between Barberton and Orville over private right of way.

Findlay, O.—The Toledo, Fostoria and Findley Electric Line will be extended to Toledo from Pemberville, a distance of seventeen miles.

Oberlin, O.—The Central Pennsylvania Traction Company proposes making a number of changes and improvements to its line between this place and Steelton during the coming spring and summer.

Norfolk, Va.—The Norfolk and Ocean View Railway Company is preparing to issue \$1,500,000 bonds for additional lines and other betterments.—E. C. Hathaway, General Manager.

Roanoke, Va.—The Roanoke Traction Company has been incorporated with a capital stock of \$40,000 for the purpose of building a street railway.—C. Markey is President.

Walla Walla, Wash.—Arrangements are being made by the officials of the Northwestern Corporation, the \$5,000,000 concern controlling the lighting and power plants of nearly a score of cities in Washington, Oregon, etc., for the construction of a large power plant in Oregon; the building of a railroad in Willamette valley; traction lines in the city of Eugene, Oregon, and interurban lines in that vicinity, and the extension of lines in Walla Walla.—Isaac W. Anderson, President.

Grafton, W. Va.—The City Traction Company is preparing to build the proposed street railroad two and a half miles long.—C. E. Conway of Fairmount, W. Va.; B. F. Overholt and others, incorporators.

Eau Claire, Wis.—The Chippewa Valley Electric Railway Company has accepted franchise and will commence the erection of a plant.

Madison, Wis.—The Madison-Janesville Interurban Railway has accepted franchise granted by City Council to work on a line to be commenced in the near future.

BRIDGES

Bluffton, Ind.—Engineer Barson is preparing specifications for fifteen bridges for which appropriations have been made by the County Council and their aggregate cost will be about \$9,000; the bridge over the Wabash will not be built this year, as only \$11,000 was appropriated; there are fifteen other bridges to be built, ranging in cost from \$250 to \$1,000.

Hammond, Ind.—The Monon Railway Company is planning to build a double track bridge across the Calumet river.

Paoli, Ind.—Floods did several thousand dollars damage to the gravel road, Orange county, and Marengo, Crawford county; all

bridges and culverts on the road are said to have been washed away.

Petersburg, Ind.—Many bridges in Pike county have been taken out by flood; they will be rebuilt.

Worthington, Ind.—A bridge across Goose Creek in Highland township was washed away; it will be rebuilt.

Wichita, Kan.—The bridge bond propositions are before the public at the coming spring elections; one is for a bond issue of \$100,000 for a bridge across the Arkansas river on Douglas avenue, and the other for two bridges within the city limits.

Clinton, Me.—Estimates have been made for a 500-foot bridge.

Benton Harbor, Mich.—An election will be held to decide the question of issuing \$30,000 bonds for building bridges.

Hart, Mich.—The proposition to issue \$7,500 bonds for the construction of a new bridge over the river near Bennett Mill will be submitted to a vote of the people.

New Ulm, Minn.—A bill appropriating \$8,000 for a bridge across a portion of Lake Hanaka is before the Legislature.

Rotterdam Junction, N. Y.—Renewed efforts are being made by the residents of this town and Patersonville to secure a bridge to cross the Mohawk river between Rotterdam Junction or Patersonville and Glenville, and Senator Wemple's aid has been enlisted.

Chillicothe, O.—Many bridges have been taken out by flood; they will be rebuilt.

Cincinnati, O.—Jas. Bouscaren has prepared plans and specifications for the erection of a viaduct, to be known as the Hopple street viaduct; estimated cost, \$500,000; the viaduct will be constructed so as to cross Mill Creek and the E. & O. tracks.

Marion, O.—A bridge is to be built over the Little Scioto river at Roberts' road, Grand Prairie township.—V. Perle Garfield, Clerk, Board of County Commissioners.

Chamberlain, S. D.—The big bridge of the Chicago, Milwaukee & St. Paul Railroad, across the Missouri river here was partly washed away by water and ice; as soon as the water goes down a pontoon bridge will be used until a new bridge can be constructed.

Houston, Tex.—The County Commissioners have directed the County Engineer to prepare plans for a viaduct at the foot of Main street.

MISCELLANEOUS

Birmingham, Ala.—Council is preparing to offer for sale \$12,000 6 per cent. 10-year street improvement bonds.

San Diego, Cal.—The citizens will vote on the question of issuing \$795,000 municipal improvement bonds.

Los Angeles, Cal.—Council will submit to a vote of the people the first week in April the question of issuing \$23,000,000 bonds for Owen river purposes.

Washington, D. C.—The various government departments will receive bids, April 22, 2 p. m., for a miscellaneous assortment of supplies for the fiscal year ending June 30, 1908; among the articles are electrical fixtures, paints, hardware, plumber's materials, photographic and heliographic supplies, etc.—Address the heads of the department.

Carrollton, Ga.—Bonds, \$25,000, have been authorized for improvement purposes.

Louisville, Ky.—The city will build subways at Oak street crossings of the Louisville & Nashville and Illinois Central Railroads.—Major J. P. Clavbrook, Chief Engineer, Board of Public Works.

Laurel, Md.—Council is preparing to issue \$50,000 bonds for the erection of a new electric plant and sewerage system.

Winchendon, Mass.—The citizens have voted to appropriate \$3,000 for a stone crusher.

Trenton, N. J.—A bill has passed Legislature authorizing the construction of a canal 280 feet wide.

Columbus, O.—The American Sewer Pipe Company has the contract for the cement to be used on the Miami, Erie and Ohio canals at \$23,000.

Dayton, O.—Council has authorized the purchase of ten street-sweeping and two flushing machines.

Westerville, O.—The village will issue \$3,000 worth of bonds to cover improvement of the Municipal Electric Lighting plant.

Cincinnati, O.—Bonds, \$25,000, will be issued to cover cost of underground toilet rooms on Fountain square; marble stairways, brass railings, closets, urinals, nickel plumbing, tile flooring.—G. W. Drach, Architect.

Davton, O.—Bids will be received, April 11, for the purchase of the following bonds: \$100,000, for park purposes; \$7,000 for constructing bridge on Washington street; \$45,000 for paving purposes; \$6,000 for sewer purposes.—Edward Phillips, City Auditor.

Altoona, Pa.—The School Board offers for sale \$120,000 4 per cent. 30-year school bonds.—C. M. Piper, Secretary.

BIDS RECEIVED

Birmingham, Ala.—The following bids were opened, March 9, for erecting new fire station at Fifteenth street and Third avenue, by City Engineer Julian V. Kendrick: C. W. Hall, \$9,430; Frederick Moesser, \$9,484; P. E. Bostic, \$9,970; the Hadnot-Pharrow Construction Company, \$10,341.43, and A. J. Krebs, \$10,860.—A. V. Bennett, Chief, Fire Department.

Washington, D. C.—The Bucyrus Company of South Milwaukee, Wis., was the lowest bidder for twenty-two steam shovels to be used on the Isthmus, for which proposals were opened, March 18, by D. W. Ross, Purchasing Agent of the Isthmian Canal Commission; the price offered on fifteen ninety-five-ton shovels was \$12,400 each, delivered in Panama, and on seven fifty-ton shovels, \$7,000 each, delivered at Colon; at present there are sixty-three steam shovels on the Isthmus, and the twenty-two additional probably are all that will be required.

Washington, D. C.—Pavarini & Wyne have been awarded contract to construct new public school in Anacosta, at \$42,500, work to be completed in eight months; other bids were: R. T. Humphrey, \$43,900; Burgess & Parsons, \$44,123; J. M. Dunn, \$44,922; Engineering Construction Company of Baltimore, \$45,905; W. E. Mooney, \$48,766, and McKay & Morris, \$50,266.

Washington, D. C.—The Potomac Dredging Company has been awarded contract for furnishing sand and gravel to the District for the next fiscal year, at 65 cents per cubic yard for sand and 85 cents for gravel; the Columbia National Sand Dredging Company submitted a bid which was practically the same, except that it did not provide as convenient a place of delivery, which is important, as the District will do its own hauling.—N. B. F. Macfarland, Commissioner.

Atlanta, Ga.—The Gamewell Company has been awarded contract for supplying key guards for the fire alarm boxes.—W. B. Cummings, Fire Chief.

Tulsa, I. T.—The Cleveland Trinidad Asphalt Company has been awarded contract for paving twenty-three blocks with asphalt for \$127,000.

Terre Haute, Ind.—Contractor Wm. J. Erler is the low bidder for the construction of the Ohio street sewer at \$7,259; contract calls for a 60-inch brick sewer.

Burlington, Ia.—Bids for constructing Locust street sewer, 11,093 feet long, were opened, March 18, as follows: R. K. Smith, Muscatine, \$3.11 per lineal foot; Young & Bouscher, Burlington, \$2.96 per foot; Burlington Construction Company, Burlington, \$2.94 per foot, and McCarty Improvement Company, Davenport, \$3.04 per foot; the contract was awarded the Burlington Construction Company, work to be commenced April 5 and completed by November 1.—J. F. Winters, City Engineer.

Oseola, Ia.—Smith & Son, of Atlanta, were awarded contract for furnishing and laying 4,000 feet 6-inch water pipe in 5-foot trench, at \$4,118.60, including 8 hydrants and 2 valves.—W. M. Temple, Clerk.

Ottumwa, Ia.—John W. Scott was awarded contract for constructing 8-foot brick and stone sewer—Blake's Branch Trunk Sewer—at \$13.60 per lineal foot; other bids were: Keefe Brothers, at \$14.94; People's Construction Company, Davenport, \$18.25; King, Lambert Construction Company, Des Moines, \$19; John W. Scott was also awarded contract for the West End Trunk Sewer System, as follows: Reinforced concrete sewer, 9-foot, pile foundation, at \$23.90; 8-foot, \$12.25; 6-foot brick, \$6.50; 6-foot block, \$6; 5-foot brick, \$6; 5-foot block, \$5.75; 4½-foot brick, \$5; 4½-foot block, \$4.75; 36-inch clay pipe, \$6.50; other bidders were: N. N. Naugle & Co., People's Construction Company, and King, Lambert Construction Company.—C. R. Allen, City Engineer.

Louisville, Ky.—The Barber Asphalt Company has been awarded the contract for the paving of the following streets in Fourth avenue, from Main to Walnut, Preston street, from Oak to St. Catherine, and Second street, from Jacob to Breckenridge, at \$1.62 per square yard.

Detroit, Mich.—The Water Board, on March 13, let contracts as follows: Iron pipe, 5,000 tons—American Car and Foundry Co., 6 to 12-inch, \$34.25; 16 to 42-inch, \$33.45; corporation cocks—N. Hardoin Brass Co., ½-inch, 6,000, 53 cents; 1-inch, 2,000, 90 cents; special castings, year's supply, large sizes, \$3.40, Co-operative Foundry; small sizes, \$2.50, American Car and Foundry Co.; water gates—A. J. Roe, 4-inch, \$10.10; 6-inch, \$15.12; 8-inch, \$24.15; 16-inch, \$185; 24-inch, \$335; 42-inch, \$1,045.—Ben Guiney, Secretary.

Worcester, Mass.—The Webb Granite and Construction Company has been awarded a contract for laying 8,000 square yards of pavement at \$1.60 per square yard.

New York, N. Y.—The award for the construction of a section of the new aqueduct, about 10 miles in length, extending north from Hill View reservoir, in Westchester county, bids for which were opened March 18, will probably go to the Thomas McNally Co. of Pittsburgh, the lowest bidder; this firm offered to build the section for \$4,126,423; McArthur Bros., New York City, bid \$4,366,335; Thomas E. Crimmins Constructing Co., New York City, \$5,447,170; T. A. Gillespie, \$5,644,495; Naughton & Co., New York City, \$5,653,577; Crawford & Co., Brooklyn, \$5,681,762; Michael J. Dady, Brooklyn, \$6,035,530, and Patrick McGovern & Co., of Boston, Mass., \$6,149,408. The Board of Water Supply before giving the contract to the McNally Company will inquire into the financial standing of the firm and the extent of its plant, and if the investigation is satisfactory the company will get the contract.—J. Waldo Smith, Chief Engineer.

Cleveland, O.—The U. S. Cast-Iron Pipe and Foundry Company, on March 6, submitted proposal to furnish 1,030 tons 3 to 48-inch cast-iron water pipe, at \$36.25 per ton delivered on streets, or \$37,337.50; the Semisteel Company, 55 tons special castings, 3 to 48-inch, at \$64 per ton on streets, or \$2,916, and the Lake Erie Nail and Supply Company, 64 tons pig lead, delivered f. o. b. cars, Carnegie, Pa., at \$123.30 per ton, or \$7,891.20.—A. R. Callow, Secretary, Board of Public Service.

Columbus, O.—Contracts for State highways have been awarded as follows: Wayne county, 1.03 miles macadam road, to Bormuth and Babst, Crestline, for \$6,799.09; Summit county, 2 miles macadam road, Taylor and Edgerton, Findlay, \$11,803.20; Licking county, 1.6 miles macadam road, to W. S. Pace, Newcomerstown, \$11,873.22; Wayne county, Dermuth and Pabst, Crestline, \$6,719.09; Summit county, Taylor and Edgerton, Findlay, \$11,803.90; the roads are from a mile to a mile and a half long.—Sam Huston, State Highway Commissioner.

Springfield, O.—Caffrey & Doyle were low bidders on ten of eleven contracts for constructing sewers, bids for which were opened March 11, at \$7,079.75; M. J. Hannon was low bidder for constructing sewer in Ferncliff and College avenues, at \$1,077.50.—W. H. Sieverling, City Engineer.

Wooster, O.—The contract for the new macadam road in Bloomington has been awarded to Bormuth and Babst, of Crestline, at \$6,719.

Portland, Ore.—M. B. Freeman has been awarded contract for constructing school building containing ten rooms and an assembly room at Arleta, and a six-room addition to the Portsmouth school, for \$42,900; U. G. Street & Son have been awarded contract for the Vernon school, 8 rooms and assembly hall, at \$26,350; the Northwest Furniture Company has been awarded contract for 1,000 seats for the assembly hall for the new East Side High School, at \$3.50 each.—Mayor Lane.

Sayre, Pa.—John J. Higgins, Waverly, N. Y., was low bidder for constructing sewers, bids for which were opened March 12, at \$19,312.80, as follows: 4,240 feet terra cotta pipe in 17-foot trench, at \$2.60; 1,060 feet 20-inch, \$3.13, and 560 feet 18-inch, \$1.25, and 160 feet 24-inch cast-iron pipe, \$9; manholes, 8-foot depth, \$50; each additional foot, \$3; wages of common labor \$1.50 per day; other bids were: Busch & Stewart, Williamsport, \$20,973.40; B. G. Coon, Keystone, \$21,560.80; J. L. Shea & Co., Sayre, \$19,669; H. B. Failing, Fulton, N. Y., \$22,234.56; John J. Tyne & Co., Binghamton, N. Y., \$24,669.40; Moore & Smith, Buffalo, N. Y., \$24,150; Fritz & Partridge, Scranton, \$22,760.20; Engineer's estimate, \$19,558.40.—H. H. Mercereau, Borough Clerk.

Tyler, Tex.—Ockander Brothers, of Nero, have been awarded contract for laying 11,000 square yards of brick pavement, on 5-inch concrete foundations, for \$25,300.—Jno. H. Bonner, Mayor.

Norfolk, Va.—The Board of Control has awarded contract for the new police signal system to the Gamewell Fire Alarm Telegraph Company, New York City; 50 signal boxes will be placed; an appropriation of \$12,500 has been made for the installation of the service in Norfolk and \$4,000 for Berkley Ward.—Harry Hodges, Chairman, Police Committee, Board of Control.

Tacoma, Wash.—George Milton Savage has been awarded contract for paving South Ninth, Eleventh and Thirteenth streets with sandstone blocks at \$151.487. Kibler & Jones bid \$153.110; the Independent Asphalt Paving Company, of which Mr. Savage is the Tacoma representative, has contract for a large amount of asphalt work. P. E. McHugh has been awarded contract for work in water main district No. 515 at \$8,740, which includes construction of 6-inch wooden stave pipe. F. A. Keasal bid \$8,829. Owen Woods, Commissioner of Public Works.

Jefferson, Wis.—The Board of Public Works has let the contract for paving to be done during the summer to Bartlett &

BACK NUMBERS WANTED

We will pay 25 cents each for copies of the issues of JULY 4th and JULY 11th, 1906, of this paper.

MUNICIPAL JOURNAL
AND ENGINEER
FLATIRON BLDG., N. Y.

STREET LAMP ATTACHMENT.
The present flat flame gas light quickly changed to
BEST MODERN LIGHTS.
Lamps giving 10-25 candlepower made to produce 40 to 70 candlepower. No additional gas consumed
CENTURY LIGHT & POWER CO.
35 Warren St., N. Y. City

THE CLEARFIELD CLAY WORKING CO.
Manufacturers of
"CLEARFIELD VITRIFIED PAVING BLOCK"
Vitrified Brick of all kinds
CLEARFIELD, PENNA.

Stanchfield of Watertown for \$22,774.96, as follows: 6,407 cubic yards excavation, \$1,441.58; combination curb and gutter, 3,294 lineal feet, \$1,614.06; 8x9 concrete return curb, 270 lineal feet, \$54; 3-inch return curb, 402 lineal feet, \$80.40; block pavement, including 3-inch concrete foundation and asphalt filler, 10,107 square yards, \$13,799.02; 15 small-sized catch basins, \$150; 1 large-sized catch basin, \$38; 18-inch storm sewer pipe, 320 feet, \$288; 12-inch storm sewer pipe, 160 feet, \$96; concrete blocks, 30 lineal feet, \$6; cast-iron gutter bridge, 189 lineal feet, \$207.90. Pavington block can be secured at 2 cents per square yard less than Posten block and will probably be selected. Other bidders were: R. R. Bredsdall, Racine, \$25,267.03; N. Reichert, Racine, \$28,157.40; Wooley & Hansen, La Crosse, \$25,004.50; Concrete Construction Company, Green Bay, \$25,006.38; J. Rasmussen & Son Co., Oshkosh, \$25,204.42; J. Cape & Sons, Racine, \$28,344.10, and Blake Bros., Madison, \$28,636.79. T. C. J. Bullwinkel, City Clerk.

Wheeling, W. Va.—The Richmond Iron Works, Richmond, Va., was low bidder for furnishing and delivering iron and steel for bear-trap gates for Dam 13, Ohio river, proposals for which were opened March 12, at \$16,000.13, as follows: \$5,400 lbs. structural steel, at 4½ cents; 16,500 lbs. forgings, at 5½ cents; 10,900 lbs. pins, etc., 6½ cents; 25,900 lbs. bolts, etc., 3½ cents; 84,600 lbs. steel castings, 8½ cents; 17,700 lbs. iron castings, 4½ cents; 66,500 lbs. cast-iron counter weights, 2½ cents; other bids were: Allegheny Forging Company, Pittsburgh, Pa., \$23,398.90; Penn Bridge Company, Beaver Falls, Pa., \$18,627.59; Leidecker Tool Company, Marietta, O., J. & B. Milholland Company, Pittsburgh, Pa., \$18,419.94; Sterritt-Thomas Foundry Company, Pittsburgh, Pa., \$19,558.38; Lawrence D. Weaning, Cleveland, O., \$19,231.55; the Leidecker Tool Company, Marietta, O., bid 4.95 cents per lb. for structural steel; 3.85 cents for iron castings, and 2.72 cents for cast-iron counterweights, and the Philadelphia Engineering Company, Philadelphia, Pa., bid 9.9 cents for steel castings.

INCORPORATIONS

Central Electric Light Co., Bedford, N. Y.; electric light, heat and power; capital, \$5,000. Incorporators: Charles Haines, Bedford, N. Y.; Albert A. Stein and Frank Jarvis, Harrison, N. Y.; William W. Ford, White Plains, N. Y.

Unit Concrete Steel Co., Portland, Me.; tile, steel, cement; capital, \$25,000. President, J. E. Manter; treasurer, C. E. Eaton; clerk, M. W. Baldwin, all of Portland, Me.

Urban Water Supply Co., Mineola, L. I.; to supply water; capital, \$100,000. Incorporators: Montgomery D. Coleman, 151 West 15th street; Samuel M. Gaines, 202 West 118th street; J. Milton Ferry, 120 Broadway, all of New York, and others.

Prairie State Traction Co., White Hall, Ill.; to construct and operate a railway from White Hall or Boodhouse, Ill., through Macoupin county to Pana, Ill.; capital, \$6,000. Incorporators: H. C. Morrow, A. P. Grout, H. M. Bowen.

Home Gas Machine Co., Portland, Me.; gasoline lighting; capital, \$100,000. President, J. E. Manter; treasurer, C. E. Eaton; clerk, M. W. Baldwin, all of Portland, Me.

City Light and Power Company, Kelleen, Tex.; capital, \$10,000. Incorporators: W. R. Burke, W. R. Barber and others.

Northside Light and Water Co., Chestnut Hill, Richmond, Va.; capital, \$50,000. Incorporators: J. T. Goodwin, F. F. Rennie and C. D. Wilder.

Montgomery Bridge Co., Montgomery, W. Va.; to construct toll bridge over Kanawha river; capital, \$100,000. Incorporators: George Love, Dr. C. J. Henderson and others.

The Coal Center Water Works Company, Coal Center, Pa.; capital, \$50,000. Incorporators: Samuel A. Taylor, F. O. Graham, of Wilkinsburg, and others.

Sheehan Contracting Co., New York; general contractors; capital, \$15,000. Incorporators: John M. Sheehan, 404 East 58th street; Hugh C. Murray, 60 William street; Nathan Libman, 51 East 92d street, all of New York.

National Gas Regulator Co., East Orange, N. J.; to manufacture machines and devices for regulating, controlling and delivering gas, etc.; capital, \$100,000. Incorporators: Robert H. Hillis, 52 Park avenue; William J. Hillis, 74 Hamilton street; Robert Hillis, 76 Ashland avenue, all of East Orange, N. J.

New York Engineering Co., Hempstead, N. Y.; engineering, construction, etc.; capital, \$100,000. Incorporators: James C. Ewing, J. Trowbridge Bailey, Albert C. Ludlum, 21 State street, New York.

The Norwich Electric Company, Norwich, Conn.; capital, \$5,000. Incorporators: Charles J. Twist, James M. Fillmore and others.

The Sandusky Terminal Dock Company, Sandusky, O.; capital, \$30,000. Incorporators: John Homegardner, Louise Homegardner, William Hendrickson, Elizabeth Hendrickson and Charles L. Wagner.

John O. Stivers Electrical Company, Denver, Col. Capital, \$100,000. Incorporators: John O. Stivers, Henry Broadhurst and others.

PATENT CLAIMS

844,498. Dam and Apparatus for and Method of Constructing the Same. Hugh L. Cooper, Stamford, Conn. Serial No. 315,427. The method of constructing a dam, consisting in constructing sections of the dam with open spaces between for the flow of the water, then progressively excluding the water from the open spaces, and filling the open spaces after and while the water is excluded therefrom, substantially as described.

THE almost World-wide tendency among the municipalities to go over to the wood-block in preference to the other pavements has been brought about by its record on the London and Paris foundations. We can sell you this foundation at one-half the London and Paris prices. Over twenty-five years ago the creosote wood paving-block fell into utter disrepute in America, on account of the American foundation. The Nash Road, Borough of Brooklyn, New York City, U. S. A.

845,100. Apparatus for Removing Snow From Streets. Emanuel G. Kohout, New York, N. Y. Serial No. 332,581.

In an apparatus for removing snow from streets, a scoop-drag adapted to be drawn along the street, said scoop-drag being box-shaped in form and open at one end and provided with wheels or rollers in the bottom thereof, and a wagon having a bed or body open at the rear end, and means whereby the scoop-drag may be drawn into said bed or body and devices for dumping said drag at the rear end of said body.

845,182. Lock for Manhole-Covers. Benjamin T. Letts, Elizabeth, N. J. Serial No. 319,486.

A manhole-cover comprising a casing, arms adapted to reciprocate in and out of the casing, a flange pivoted to the inner ends of the arms, a tubular structure extending through the top of the casing, a lug on the casing, a longitudinally-moving latch on the flange to engage either side of the lug, and means for moving the latch to release it from the lug.

845,226. Meter Box. Edwin H. Ford, Hartford City, Ind. Serial No. 329,104.

A meter-box comprising a closed bottom hollow casing provided with diametrically oppositely located recesses, a meter provided with an inlet and an outlet pipe, the ends of said pipe engaging with the recesses, and a locking means for locking the meter longitudinally in operating position.

845,289. Pavement and Metal Reinforce Therefor. Edwin H. Benners, Elizabeth, N. J. Serial No. 325,767.

A pavement formed of plastic material having an embedded metal surface reinforce free to sink and provided with means to prevent upward working of said reinforce.

845,392. Centering Device for Drain or Similar Pipes. Lucian R. Blackmer, Webster Groves, Mo., assignor to Blackmer & Post Pipe Company, St. Louis, Mo., a Corporation. Serial No. 303,771.

As a new article of manufacture a centering device for drain or similar pipes consisting of a segment-shaped strip having its inner surface curved in an arc throughout its length.

845,394. Automatic Dam. Francesco Camagni, Asti, Italy. Serial No. 312,246.

An automatic dam for continuously maintaining the water in a river or the like at a constant level, comprising a vessel having holes therein which communicate with the upstream and pivoted to turn about an axis above the highest level of the water, said dam being inclined so as to have its lower end downstream relatively to the axis substantially as described.

845,503. Composition of Matter for Use as Paving Material. Gabriel Bognar and Alexander Toth, Perth Amboy, N. J. Serial No. 344,524.

The herein-described composition of matter for use as paving material, consisting of bitumen two parts, sand eight parts, ground earthy material four parts, lime five parts, substantially as described.

TECHNICAL MEN constantly in demand among firms we serve in Cuba, South America, Mexico, and the Philippines. Write us to-day, stating age and experience. Hapgoods, 305 Broadway, New York.

THE BARBER ASPHALT PAVING COMPANY

The largest producers and manufacturers of Natural Asphalts, for Paving and Commercial purposes, in the world

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LAND TITLE BUILDING
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NEW YORK

Street Improvements

Do you want a Comfortable, Sanitary, Satisfactory Street pavement, economical in Construction and Maintenance? The National Paving Brick Manufacturers' Association will send you reliable information free. Address:

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TERRE HAUTE, INDIANA

VITRIFIED PAVING BRICK AND BLOCK



Repressed
and
Wire Cut

LET US FIGURE
WITH YOU

THE UNITED BRICK COMPANY
Conneaut, Ohio

Proposals

Sewer

Parkersburg, W. Va.
Sealed proposals or bids will be received by the Board of Affairs of the City of Parkersburg, W. Va., until 8 o'clock p. m., Thursday, April 11, 1907, for the furnishing of the material and labor for the construction of a two-ring brick storm sewer, six (6) feet in diameter, beginning at or near the center of Plum street, in said city, and running a distance of about 800 feet, according to the plans and specifications prepared by and on file in the office of J. V. Dunbar, City Engineer of said city. All bids must be accompanied by a certified check for Five Hundred (\$500.00) Dollars, payable at a bank, to the order of Frank Good, Auditor, as a guarantee that the successful bidder will enter into a contract and give the bond required for the faithful performance of said work.

The Board of Affairs reserves the right to reject any or all bids.

FRANK GOOD, Auditor.

Sheet and Block Asphalt Paving

OFFICE OF THE COMMISSIONERS, D. C., Washington, D. C., March 2, 1907.—Sealed proposals will be received at this office until 12 o'clock noon, Saturday, March 30, 1907, for laying asphalt block pavements, also for paving various streets and avenues with sheet asphalt. Blank forms of proposal, specifications and all necessary information may be obtained at Room 43, District Building, H. B. F. MACFARLAND, HENRY L. WEST, JOHN BIDDLE, Commissioners, D. C.

Macadam Roads

Ithaca, N. Y.
The Board of Supervisors of Tompkins County, N. Y., invite correspondence relative to improving thirteen miles of highway. Work is to be sub-let and the necessary machinery and tools may be obtained from the county.
WILLIAM H. PARKER,
Chairman Good Roads Committee.

Cement

Brandon, Manitoba, Can.
Sealed tenders addressed to the Chairman of Board of Works and endorsed "Tender for Cement," will be received by the undersigned until 12 o'clock noon of Thursday, April 11, 1907, for supplying from 6,000 to 8,000 barrels of Portland cement to the City of Brandon.

Specifications and form of tender may be obtained on application to W. H. Shillinglaw, City Engineer, Brandon, Man.
The lowest or any tender not necessarily accepted.

HARRY BROWN, City Clerk.
Brandon, Manitoba, Canada, February 8, 1907.

Concrete Septic Tanks

Ithaca, N. Y.
Sealed bids will be received by the Board of Sewer Commissioners of the City of Ithaca, N. Y., at their office in the City Hall, up to 8 p. m. of Thursday, April 4, 1907, for furnishing all materials and labor necessary to build complete the proposed reinforced concrete septic tanks to be installed in connection with the Ithaca Sewerage System. The work involves about 1,100 cubic yards of concrete, with piping, valves, etc.

H. L. STEWART,
Superintendent.

Viaduct

New Orleans, February 21, 1907.
Pursuant to Ordinance No. 4301, N. C. S., sealed proposals will be received at the office of the Comptroller in the City of New Orleans until the hour of 1 p. m., Monday, April 29, 1907, for the construction of a viaduct over the tracks of the Southern Pacific R. R. Co., on the line of Newton street in Algiers, in accordance with the plans and specifications on file in the office of the City Engineer.

Deposit \$1,000.00 with the City Treasurer and his receipt enclosed with bid.
Bond in an amount equal to the contract price.

The City Engineer will furnish bidders with a blank form of proposal. No proposal will be considered unless submitted on such form.

Bidders must have paid their City license in order that their bids may be accepted.

The city reserves the right to reject any and all bids.

CHAS. R. KENNEDY, Comptroller.

MUNICIPAL CIVIL SERVICE COMMISSION

299 Broadway.

New York, March 11, 1907.

Public Notice Is Hereby Given that applications will be received from Monday, March 11, until 4 P.M. Wednesday, April 24, 1907, for the position of

ASSISTANT ENGINEER IN CHARGE OF SECTION, BOARD OF WATER SUPPLY.

The examination will be held on Wednesday, May 3, 1907, at 10 A.M.

Appointments will be made for work outside of the city, and certification will be made to the Board of Water Supply only.

The examination is open to all citizens of the United States.

The salary is \$2,400 per annum and over.

Ten years' experience is necessary. Graduation from a technical school of recognized standing will count as two years' experience. A candidate must show at least two years of experience in charge of work or in a position in which he had some authority or responsibility.

Statements of such examination will be subject to publication, and must be furnished to the Board of Water Supply. In submitting statement of experience, a candidate must show just what his connection has been with each piece of work, and just what measure of responsibility rested upon him.

The minimum age is 28 years.

For scope of examination and further information, apply to the Secretary.

FRANK A. SPENCER, Secretary.

MUNICIPAL CIVIL SERVICE COMMISSION

299 Broadway.

New York, March 13, 1907.

Public Notice Is Hereby Given that applications will be received from Wednesday, March 13, until 4 P.M. Monday, May 13, 1907, for the position of

TOPOGRAPHICAL DRAUGHTSMAN.

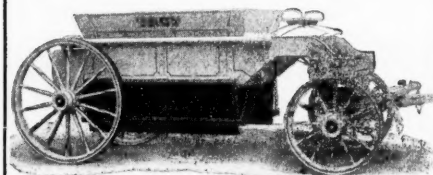
The examination will be held on Wednesday, May 29, 1907, at 10 A.M. The examination is open to all citizens of the United States. Vacancies exist in the Board of Water Supply. Certification will be made for appointment at \$1,200 per annum only.

For scope of examination and further information, apply to the Secretary.

FRANK A. SPENCER, Secretary.

Handling Ashes and Street Sweepings in TROY WAGONS


Few of the tasks which dump wagons are called upon to perform try their efficiency in certain respects so severely as does the handling of ashes and street sweepings. Both of these materials contain a very large proportion of fine particles—dust so fine that it will sift through the narrowest crack—and the conditions under which they are gathered call for repeated stops and starts of the team and for numerous turns in confined spaces. The Troy wagon meets these conditions perfectly. Because of the construction of the steel bottom doors so that they lap two inches, one upon the other, and because of the angle irons at the ends of the doors which lap two inches over the ends of the wagon box, the Troy wagon is sealed absolutely dust tight. Again, Troy



wagons are built on correct wagon making and mechanical principles—they will turn in their own length; the wheels have the proper spoke dish and draw of tire and carry the load always on plumb spokes; there is less dead weight in the whole wagon than in any other dump wagon. In a word, Troy wagons are light running, and that is exactly what a wagon has to be—when a dozen stops and starts have to be made in the length of every city block—if the ground is to be got over and the team not killed. Our catalogue No. 2 M J, which will be mailed on request, will tell other reasons why Troy wagons are the best wagons for handling street dust and ashes, and will also show the special wagon box that we supply for this work, if desired.

The Troy Wagon Works Co.

Mulberry and Race Streets
TROY, OHIO



"Not How Much, but How Good"

is another version of our motto, "QUALITY before QUANTITY."

The greater the number of pieces, or tons, of Cast Iron Pipe a foundry can turn out in a day, the better it pays—for that day

We get every piece we can, of course, but the matter of greatest concern to us is that every piece shall be GOOD

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RADFORD, VA.

McWANE PIPE WORKS

MAIN OFFICE—LYNCHBURG, VA.

EASTERN OFFICE
220 BROADWAY
NEW YORK

WHEN YOU WANT INFORMATION

about Municipal Matters write us. If it is statistics, or past history, it is apt to be in print and we can supply it. If it is current it will appear in

**MUNICIPAL JOURNAL
AND ENGINEER**

PERSONALS

BALLARD, S. F., of Tacoma, Wash., has been engaged as engineer in charge of the installation of a \$50,000 sewer system and the laying of pavement.

BALZ, C. F., who has been in the Government engineering service in the Philippine Islands, has been made Assistant Engineer and will superintend the construction of the tunnel and reservoir for the new waterworks of Manila.

BARTH, PAUL C., Mayor of Louisville, Ky., is in receipt of numerous telegrams and letters congratulating him on his efforts in settling the street car strike and extending wishes for the success of the Greater Louisville Exposition, which opened March 18.

BENSON, F. A., has been elected a member of the Water Commission of Auburn, N. Y., by the Common Council, to fill a vacancy caused by the declination of Carl Bohman.

BUNSEN, J. F. W., has entered the employ of Muralt & Co., engineers and contractors, New York City, and will have charge of the southern office in Charleston, S. C., where a large power plant for the Charleston Navy Yard is now building.

CAIRNS, ROBERT A., City Engineer of Waterbury, Conn., recently delivered a lecture before the Men's League of the Second Congregational Church on the subject of "Public Improvements."

COOK, FRANK, has been elected Mayor of Berwyn, I. T., succeeding Dr. J. O. Gilliam, who resigned on account of moving his place of residence to his farm, which is outside the corporate limits.

DONOVAN, M. K., Mayor of Eagle Grove, Ia., and a pioneer settler, passed away recently at his home.

FAGAN, MARK M., Mayor of Jersey City, N. J., has returned after several weeks spent in Florida with City Collector Fry.

GAZLAY, WEBSTER, has been elected Associate Engineer of the Water Board of Louisville, Ky., at a salary of \$5,000 per annum, in order to hurry along the completion of the filtration plant which it had been expected would be ready for use in October, 1906. Mr. Gazlay was for many years employed as Assistant Engineer by the old Louisville Water Company, but resigned to accept a more lucrative position.

GREENLEAF, D. C., Mayor of Minot, N. D., who announced that he would tender his resignation to the new Council which takes office in the spring on account of pressure of his legal business, will probably retain the position, as the Council has voted to allow a salary of \$500 per annum for the Mayor and \$2 each meeting for the Aldermen.

HALEY, JAMES S., Mayor of Montpelier, Vt., has been re-elected and new executives have been chosen in cities in the Green Mountain State as follows: Burlington, Walter J. Bigelow; St. Albans, Norman N. Atwood; Barre, John S. Robins; Vergennes, James W. Ryan; Rutland, Rollin L. Richmond.

HALLENTHAL, CARL, has been appointed Chief Engineer of the Building Department of Chicago, Ill.

HARRISON, CHRISTOPHER, City Engineer of Everett, Mass., has been reappointed for the ninth consecutive term. He is also Military Engineer for the State of Massachusetts, with the rank of Captain.

MCCLELLAN, GEORGE B., Mayor of New York City, on the seventieth birthday of former President Grover Cleveland, March 18, recommended to the Board of Aldermen that the square at the Manhattan end of the New Manhattan bridge, which is to span the East River, be named Cleveland Park.

MORGAN, FRED C., a member of the Montana Legislature, has been elected Mayor of Missoula, to succeed M. R. C. Smith, Mayor for four years, who resigned to become a Deputy State Game Warden. Mayor Morgan is the youngest executive the city has ever had, being twenty-eight years of age.

RAMSEY, FRED K., Clerk of the Board of Park Commissioners, of Manchester, N. H., and Sheriff-elect of Hillsboro County, has tendered his resignation to Mayor Reed and the same will be acted on by the Board of Aldermen at its meeting April 2.

RUST, CHARLES H., City Engineer, Toronto, Canada, has been to New York to look for an expert for the Union Station plan. While away he consulted Mr. G. B. Francis, who has been retained by the Grand Trunk Railway.

SEARCY, GEORGE A., George W. Christian and Walter S. Patton, comprising the Board of Public Works of Tuscaloosa County, Ala., have resigned, the same to take effect April 1. The Governor will name successors to serve until the general election in 1908, when by a recent law the naming of the board will be elective.

STEVENS, CAPT. CHARLES E., Chief of the Night Patrol of the Dover, N. H., Police, on March 16 celebrated his twenty-fifth anniversary as a member of the force and was the recipient of congratulations from friends all over New England.

WILCOX, GEORGE, Mayor of Summit, N. J., passed away recently, aged sixty-eight years. He was active in organizing Summit as a city and in April, 1890, was elected as the first Mayor; he was defeated by George W. Baldwin in 1903, but defeated Mayor Baldwin in 1907. Mayor Wilcox practiced law in New York City.

TRENCH MACHINES

We Sell and Lease All Kinds of Hoisting and Conveying Machines for Trench Work

Catalogue Sent Upon Request

Carson Trench Machine Co.

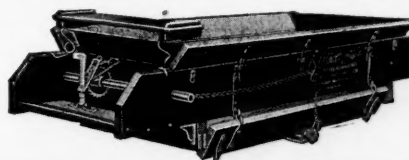
BOSTON, U. S. A.

BRANCH OFFICES: 10 Barclay Street, New York; Park Bldg., Cleveland; 299 St. James Street, Montreal.

THIS DUMP-BOX

Fits Any Gear Wagon

Is operated entirely with the foot. Endorsed by contractors everywhere. Its many good features will be explained upon application.



EVERETT MFG. COMPANY, 44 Lake St., Newark, N. Y.

WHEN you purchase a dump wagon, consider carefully the item of repairs. It is not alone the cost of a new part; the great expense lies in the two or three days' time lost while your outfit awaits the receipt of a new part from the factory.

Buy a wagon that is practically unbreakable because there is scarcely



anything to break. Demand simplicity and shun complicity. Then, in case the unexpected happened and a break comes, every part should be a wrought forging which can be mended by the nearest blacksmith in fifteen minutes. If you are interested, we are. Please write us. We have a representative near you.

THE HENRY M. GLENN WAGON CO.

32-40 Oak St.

Seneca Falls, N. Y.

MR. CONTRACTOR:

Now, before you finish reading this issue, is the time to write for information and prices on

SENDERLING PATENT DUMPING TRUCKS

Do not delay until you are busy. Investigate now and when you are busy you will have the knowledge that they are best.

WRITE TO-DAY.

The Senderling Mfg. Co.

622 WEST 47th ST., NEW YORK CITY

Trade Notes

BULLETIN INDEX.—The Fort Wayne Electric Works, Fort Wayne, Ind., have published a bulletin containing an index of the pamphlets arranged according to subjects and according to numbers. Copies of bulletins may be obtained at the main office or at any of the branches.

CEMENT PLANT.—The Union Land and Material Company, Leggett Building, St. Louis, Mo., has purchased the plant and property of the St. Louis Portland Cement Company. The product of its mills, which manufacture the Red Ring Brand of Portland cement, will be increased to 10,000 barrels. At the plant, gas producers and engines will supply power for the kilns, and the machinery will be driven by electricity.

FILTER.—The Wright Manufacturing Company, 55 Woodbridge street, Detroit, Mich., manufactures a special filter designed for use in connection with water pipes, boiler-feed and meter systems. The object is to prevent rather coarse materials, such as sand, scale, vegetable and floating substances, that may be in the water from getting into the boiler or into the meter. The best materials are used in construction, and the filter tube is made of brass and has an area many times that of the inlet. A blow-off valve, screwed into the opening in the plug, may be opened occasionally to clean the filter. If necessary, the filter tube itself may easily be removed.

ICE MACHINERY.—The Henry Vogt Machine Company, Louisville, Ky., has recently issued a catalogue describing their ice machinery and fittings. Absorption machinery made by the company, as well as other apparatus necessary for building complete ice and refrigerating plants, is described also.

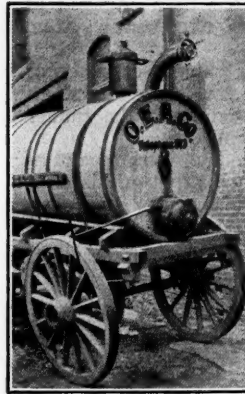
SEWER PIPE.—The National Fireproofing Company, Hartford Building, Chicago, Ill., have announced through President W. D. Henry that they will go into the field of sewer pipe manufacture. The work will be assigned to seven plants distributed through Illinois, Indiana, Ohio, Pennsylvania and New Jersey. The management of the sewer pipe department will be under Messrs. Goucher and McAdoo, formerly of the American Sewer Pipe Co.

SEWER INLET.—H. W. McDonald & Co., of Galion, Ohio, manufacture a sewer inlet which they claim to be, practically, self-adjustable—conforming to any depth of gutter, varying from 5 1-2 to 9 1-2 inches, dependent only upon a proper foundation and the street or gutter paving—that it has the necessary capacity without endangering travel on the street or interfering with lawn or sidewalk, is provided with a substantial wrought-iron iron grate which protects without obstructing the waterway, is varied in form to rest upon a catch basin, or connect directly with outlet pipe, and contains no more iron than necessary for its strength and durability, thus providing a neat and practical improvement at the least possible cost. They also manufacture Metal Forms for constructing concrete catch basins.



THE "EXCELSIOR" SEWER INLET

TIME SWITCH.—The General Electric Company, Schenectady, N. Y., in Bulletin No. 4483, describes its automatic time switch, a clockwork for opening and closing electrical circuits at fixed times.

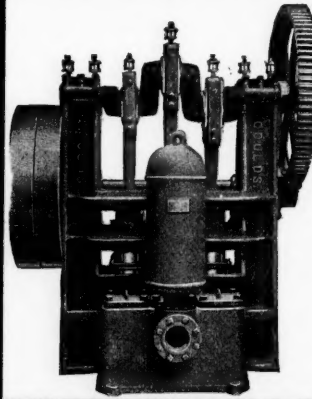


ODORLESS Excavating means cleaning out cess-pools, sinks and other receptacles of filth without offense to sight or smell, or menace to health. Let us send you a booklet called "The Facts in the Case." It will interest you.

THE ODORLESS EXCAVATING APPARATUS CO.

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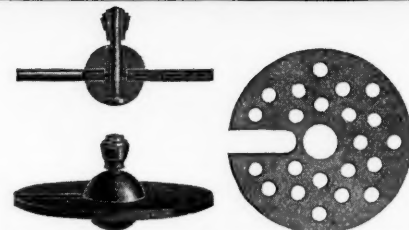
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